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The Journal of Obstetrics and Gynæcology of the British Empire

VOL. XXV. MARCH, 1914. No. 3.

Uncontrollable Uterine Hæmorrhage.*

A REPORT ON ONE HUNDRED AND FOUR BLEEDING UTERI AFTER HYSTERECTOMY.

By

HENRY BRIGGS, M.B., F.R.C.S.,

and

ROBERT A. HENDRY, M.D.

UTERINE hæmorrhage is extremely rarely fatal: its familiar effects vary vastly in degree from a grave secondary anæmia to an almost inappreciable invalidism or inconvenience: the corresponding resourceful management recognizes a small percentage of uncontrollable uterine hæmorrhage, clinically important, pathologically attractive to the investigator.

A typical example, here conveniently cited and too recent for inclusion in the completed series, is the bleeding uterus removed per vaginam on January 9 1914 from J.K., aged 33; 5½ years married; the mother of two healthy children, the second born four years ago. (Fig. 1).

Two years' menorrhagia with large clots, uninfluenced by tonic and styptic medicines, intrauterine caustics and one curettage by Dr. James Rigby, of Preston, who finally advised hysterectomy, but, on November 15 1913, admitted the plea for a second complete curettage, safeguarded by a digital intrauterine exploration in Hospital in Liverpool. The menorrhagia remained. The anæmic patient, two months later, returned to Liverpool with her own and her doctor's desire for a more radical operation.

The uterus is but slightly enlarged; its walls, including the corporeal endometrium, are appreciably thickened; there are no new growths.

The exacting diagnostic demands and the protracted treatment, tolerable and commendable at 33, become less so and also less secure,

* Read at Obstetrical and Gynæcological Section, Royal Society of Medicine, Feb. 5, 1914.

at or about the climacteric with its additional justification of hysterectomy.

Definition and classification. On the ineffectual treatment preliminary to hysterectomy, this aptly illustrative case is consistently retained under the title "the bleeding uterus," and reasonably placed under "uncontrollable uterine hæmorrhage" in the absence of an exercisable veto against "the uncontrollable." A veto exists on the ground that in the older gynæcological practice ultimate failure was almost unknown.

Medication: Minor and Major Operations.

Between the expected or early promise of a speedy styptic and the realized or late performance of a hysterectomy, "protraction," now and again, has forcibly promoted hysterectomy.

In return the hysterectomist looks back and repines over the preclusion of parity after a premature hysterectomy.

The shaky setting of cases of uncontrollable uterine hæmorrhage, on both the clinical and the pathological sides, suggests a model alliance with a mutual exchange of frankly written reports. The clinician has been too prone to put only questions on awkward material supplied to the laboratory expert. The laboratory expert has candidly reported on suspiciously, or possibly, early malignancy in many exploratory curettings.

Granted agreement on the non-malignant character of the tissue changes, the limiting line must somehow be drawn against the oft-repeated curettages.

M.S., now aged 46, and three years past the climacteric, is alive to recall the failure of ten curettages by many doctors and the success of the repeated intrauterine turpentine-gauze packs in arresting the hæmorrhage fifteen years ago. Two years later she gave birth to a healthy living child; but still later nearly lost her life from severe hæmorrhage during an early abortion.

About and after the climacteric is the solid fear that malignancy lingeringly looms behind any minor treatment.

Absence of malignancy established after hysterectomy in 13 cases of post-climacteric hæmorrhage brings them into this series.

Malignant disease of the uterus at any age has been rightly excluded from this series.

One Hundred and Four Bleeding Uteri after Hysterectomy.

In the Gynæcological Laboratory of the University of Liverpool during the $12\frac{1}{4}$ years, April 1901 to July 1913, this collection was made.

During the past three years one of us (R. A. Hendry) has been almost exclusively occupied in the investigation now reported.

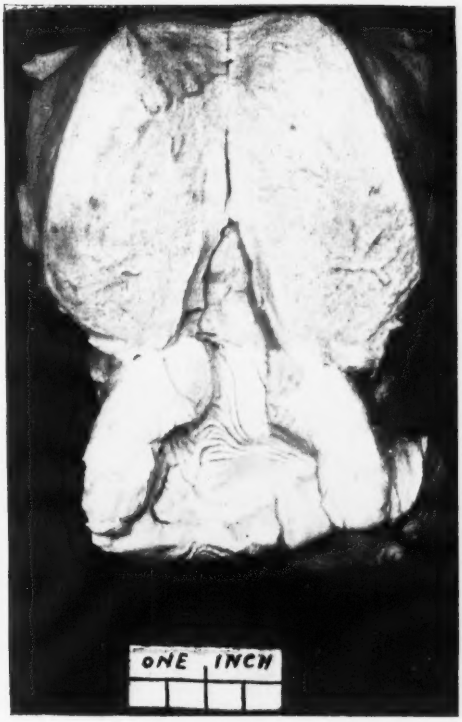

Fig. 1.

TABLE A.

THE AGES OF THE PATIENTS.

	Cases.		Years.
Division I.	10		28 to 35
Division II.	81	8	36 ,, 40
		28	41 ,, 45
		37	46 ,, 50
		8	51 ,, 55, delayed climacteric.

In the combined Divisions I and II, average age 44·1 years.

Division III.—post-climacteric onset of bleeding.

13	9	50 to 55
	4	61 ,, 72

TABLE B.

THE POSITION OF THE UTERUS.

Divisions I and II.

51 normal.
8 backward displacement with minor prolapse.
18 minor prolapse for which perinæorrhaphy was added to the hysterectomy.
14 major prolapse.

Total 91

Division III.

1 retroverted.
1 prolapsed.
11 normal.

Total 13

TABLE C.

THE WEIGHT OF THE UTERUS.

Divisions I and II.

72 uterus alone, average... ... ... 4·6 ozs.
(maximum, 10; minimum, 2·5).
14 uterus with one or both appendages.... ... 5·8 ,,
(maximum, 13; minimum, 2).
5 body of uterus (sub-total hysterectomy) 5·3 ,,
(maximum, 12·75; minimum, 3·5).

Total 91

Division III.—post-climacteric.

13 uterus alone, average... ... ... 2·8 ozs.
(maximum, 8; minimum, 1).

TABLE D.

THE SIZE OF THE UTERUS.

(External measurements.)

Division I.	average length	3·4	average depth	1·7 ins.
	maximum	4·25	maximum	2
	minimum	2·75	minimum	1·5
Division II.	average length	3·72	average depth	1·8
	maximum	5	maximum	3
	minimum	3	minimum	1·0
Division III.	average length	3·2	depth	—
	maximum	4·5	maximum	2
	minimum	2·375	minimum	0·75

TABLE E.

THE HÆMORRHAGE.

(Its Extent and Relation to the Patients' Ages.)

Divisions I and II.

14 (*a*)	$\frac{7}{21}$ or less	average age 41
24 (*b*)	over $\frac{7}{21}$	,, ,, 43·9
39 (*c*)	metrorrhagia at least one month...	,, ,, 45·2
14 (*d*)	"menorrhagia" periods not stated	,, ,, 44·9

NOTE: (*a*), (*b*), and (*c*) in order of severity; (*d*) uncertain.

TABLE F.

THE HÆMORRHAGE.

(Its Mode of Onset.)

In Divisions I and II: the records reveal

(1) in 72—a gradually increased menstrual duration—a menorrhagia over an average of 4 years: the maximum 25 years: the minimum 6 months: a corresponding reduction in the menstrual interval: in 20 of the 72 a continuous loss or metrorrhagia from 4 weeks to 12 months.

(2) in 19—a sudden onset of severe or moderate flooding followed by alternating irregular periods of amenorrhœa and hæmorrhage: average duration 7 months: maximum 16 months: minimum 3 weeks.

In Division III—sudden onset.

4—severe.

9—slight.

TABLE G.

THE ONSET OF THE HÆMORRHAGE.

(Its Puerperal Relations.)

Divisions I and II.

8 bleeding followed pregnancy.
2 ,, ,, unproved pregnancy (early abortion ?).
13 no pregnancies.
42 no ascribed relation to pregnancy.
26 not stated.

—

Total 91

Division III.

13—no relation to pregnancy.

TABLE H.

THE ENDOMETRIUM.

(Its Thickness.)

Divisions I and II.

21 not thickened—under $\frac{1}{10}$ inch.
57 thickened—over $\frac{1}{10}$ inch.
9 stalked adenoma, 8 amidst thickened endometrium.
4 sessile adenoma, 2 ,, ,, ,,
— 1 an additional stalked adenoma.

Total 91

Division III.—post-climacteric.

5 not thickened.
1 thickened.
6 stalked adenoma amidst thickened endometrium.
1 sessile ,, ,, ,, ,,

—

Total 13

TABLE I.

THE THICKNESS OF THE ENDOMETRIUM.

(Its Relation to the Total Duration of the Hæmorrhage.)

Divisions I and II (see Tables F and H).

(1) 72

Endometrium.	Duration of Hæmorrhage.						
	Under 1 year	1—2 years	2—3 years	3—4 years	4—5 years	Over 5 years	Not definitely stated
16 not thickened ...	3	5	1	0	0	4	3
45 thickened ...	7	15	2	4	1	12	4
8 stalked adenoma	3	0	0	2	0	1	2
3 sessile ,,	0	1	1	0	0	0	1
	13	21	4	6	1	17	10

(2) 19

Endometrium.	Duration of Hæmorrhage.
5 not thickened ...	2, 3, 8, 12, 17 months.
12 thickened	3 weeks, 3, 3, 4, 4, 5, 6, 7, 8, 12, 12, 12 months.
1 stalked adenoma amidst thickened endometrium.	16 months.
1 sessile adenoma	6 months.

—

91

Division III.

13

Endometrium.	Duration of Hæmorrhage.
5 not thickened ...	2, 7, 9, 11, 12 months.
1 thickened	2 attacks—3 months and also 10 days.
6 stalked adenoma	3 weeks, 3 weeks, 3 months, (4) 18 months; (5) 7 years and 1 year and 2 months; (6) 10 years and 1 year and 1 week.
1 sessile adenoma amidst thickened endometrium	12 months.

TABLE J.

The Thickness of the Endometrium.

(In its Relation to the Severity of the Hæmorrhage.)

Divisions I and II (see Tables E and H).

(*a*)	14—$\frac{7}{21}$ and under ...	endometrium not thickened	4
		endometrium thickened	10
(*b*)	24 over $\frac{7}{21}$	endometrium not thickened	6
		endometrium thickened	11
		stalked adenoma, all except one amidst thickened endometrium...	6
		sessile adenoma	1
(*c*)	39 metrorrhagia ...	endometrium not thickened	7
		endometrium thickened	28
		stalked adenoma amidst thickened endometrium	2
		sessile adenoma amidst not thickened endometrium	2
(*d*)	14 "menorrhagia," duration not stated	endometrium not thickened	4
		endometrium thickened	8
		stalked adenoma	1
		sessile adenoma	1
		both amidst thickened endometrium	

—

Total 91

Division III.

9 slight...	endometrium not thickened	4
	endometrium thickened	1
	stalked adenoma amidst thickened endometrium	4
4 severe	endometrium not thickened	1
	stalked adenoma	2
	sessile adenoma	1
	all amidst thickened endometrium	

Total 13

TABLE K.

The Parity.

Divisions I and II (see Table F).

in (1) 72		average pregnancies	4·4
		,, children	3·8
65 married		,, pregnancies	4·9
		,, children	4·2
7 single		nulliparæ	
in (2) 19		average pregnancies	6
		,, children	4·9
18 married		average pregnancies	6·3
		,, children	5·2
1 single		nullipara	
Total 91			
83 married (*a*)		average pregnancies	5·2
		,, children	4·4
8 single		nulliparæ	

(*a*) extremes—three had 17 pregnancies each
five were nulliparæ

Division III.

1 single	nullipara	
1 married	not stated	
11 married (*b*)	average pregnancies	7
	,, children	6·2
Total 13		

(*b*) extremes—one had 13 pregnancies
one had one pregnancy.

TABLE L.

Divisions I and II.

Total 91 cases.

59 uncomplicated.

32 complicated: a few patients had more than one of the following total, 39, complications found:

16 small fibroids, size $1\frac{1}{2}$, $1\frac{1}{4}$ inches, (both subserous cervical) and less, down to seedlings—six interstitial, in the outer half of the uterine wall and ten subserous—all to be disregarded as active complications in the bleeding uterus—average age of patients 45·2.

3 hydrosalpinges removed at the time of the hysterectomy—one unilateral at 46, two bilateral at 42 and 36.

2 the left appendage had been removed
(1) 6 months ago at age 30.
(2) 12 months ago at age 37.

1 both appendages had been removed 7 years previously at age 39.

6 a few perimetric adhesions.

10 thickened capsules of both ovaries without cystic or apoplectic disease.

1 chorionic polyp, $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{8}$ inches.

Division III.

Total 13 cases.

12 uncomplicated.

1 complicated: several small fibroids, size under $\frac{1}{2}$ inch, in the outer half of the uterine wall.

The Pathological Report.

The 104 uteri

3 were sacrificed to mincing in unsuccessful searches for hæmolytic lipoids;

101 were submitted to a

Histological enquiry

in reference to

(*a*) the musculature.
(*b*) the fibrous tissue.
(*c*) the elastic tissue.
(*d*) the blood-vessels.
(*e*) the evidences of infection.

(*a*) *The Musculature.*

Here, the uncertainty of ensuring uniformity of preparation and observation of microscopic sections precludes positive statement; were it not so this report would most probably go so far as to assert that

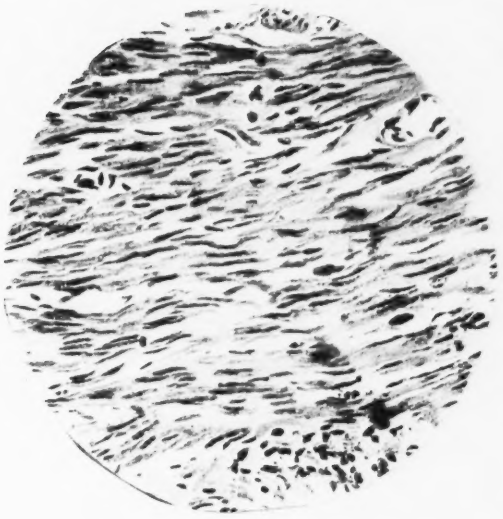

Fig. 2.

Muscle bundle × 400, control uterus, age 39.

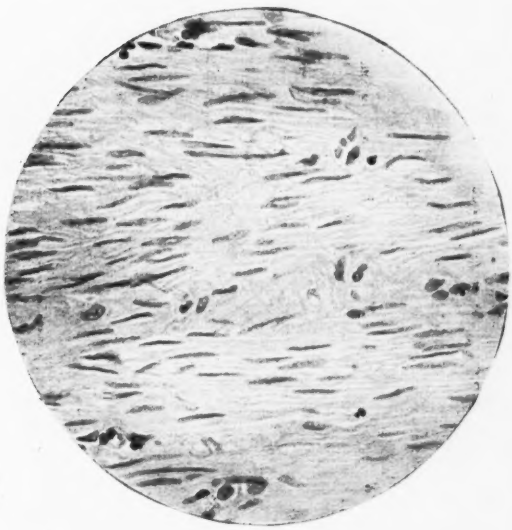

Fig. 3.

Muscle bundle × 400, bleeding uterus, age 42.

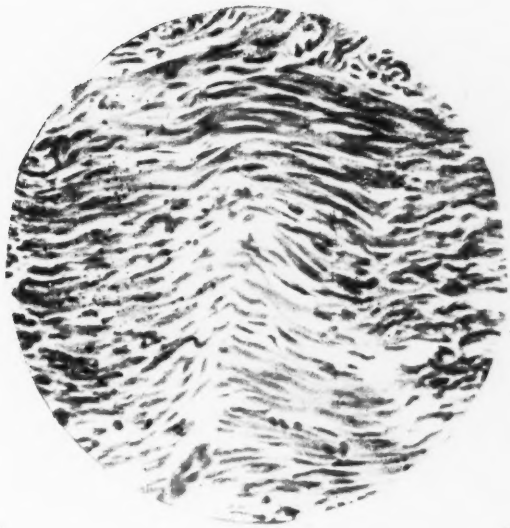

Fig. 4.

Muscle Bundle × 400, control uterus, age 32.

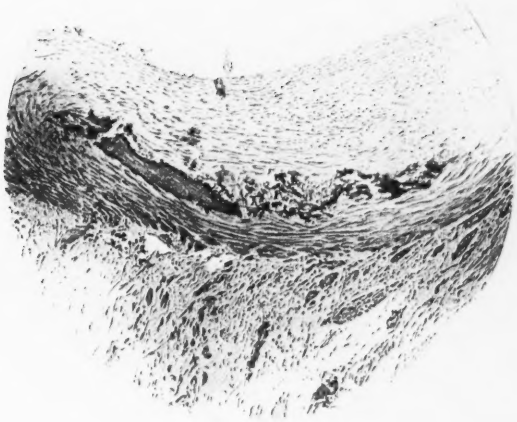

Fig. 5.

Calcification of media × 80, bleeding uterus.

the bundles of muscular fibres are more sparsely nucleated than those of post-partum uteri of corresponding age (Figs. 2, 3 and 4).

For this observation exceedingly thin sections and an oil immersion lens are essential; if both are available and the apparently more sparse nucleation is accepted as an accurate statement, the enlargement of the muscular fibre, equally consistent with either subinvolution or hypertrophy, becomes fallible evidence of muscular inadequacy.

Œdema of the muscular wall was disproved by drying 10 grammes and finding a difference of only 1 per cent. between 14 bleeding and 6 post-mortem uteri.

Fatty degeneration was sought for but not proved.

(b) The Fibrous Tissue.

(An Estimate, failing precise Standards or Tests.)

Divisions I and II.	Control—post-mortem—uteri at corresponding ages.
16 decided increase	2 decided increase
32 probable increase	4 probable increase
40 normal	6 normal
Total 88	Total 12

Summary.—In only one was the increase of fibrous tissue adequate for the total slight increase in size.

Division III. (Ages 50 to 72.)	Control—post-mortem—uteri at corresponding ages.
The 5 larger uteri, 3 ozs. to 8 ozs., proportionately more muscular tissue, resembled the uteri of Division II.	
The 8 smaller uteri, 1 oz. to $2\frac{1}{4}$ ozs., resembled the 6 control uteri.	All showed a proportionate increase of fibrous tissue and decrease of muscle.
Total 13	Total 6

(c) The Elastic Tissue.

(An Estimate.)

Divisions I and II.	Control uteri.
5 marked increase	1 marked increase
11 marked decrease	2 marked decrease
72 normal	9 normal
Total 88	Total 12

(*d*) *The Blood-vessels.*

The arteries:

Variations in their number, size and distribution were extreme.

Structural changes:

(*a*) Calcification of the media in one artery of the uterus of a 17-para, aged 50, of Division II; the intima was thickened and brought this under (*b*) below (Fig. 5).

(*b*) Thickening of the intima

in a few large vessels, Division	I	in	1	out of	9
,,	II	in	15	,,	79
in more vessels ,,	III	in	9	,,	13
			25	,,	101
The intima was normal in			76	,,	101

The thickening of the intima in the above 25, the youngest aged 30, the oldest aged 72, was not always uniform around the lumen, and in one-half of the instances there was an additional fine internal elastic lamina, the product of greater age (Figs. 6, 7, 8 & 9).

The thickening of the intima was found in 4 control uteri out of 12.

Thickening, with or without splitting, of the internal elastic lamina, of the media and of the adventitia were equally common in parous bleeding uteri and in parous control uteri.

The veins:

No pathological changes.

(*e*) *The Evidence of Infection.*

Acute infection, in four cases, was founded on the polymorphonuclear leucocytes with many small round cells in both the uterine wall and the endometrium (Figs. 10 and 11).

The four cases included

three in Division II:

in one a thickened endometrium;

in two a sessile adenoma amidst thickened endometrium.

one in Division III:

a sessile adenoma amidst thickened endometrium.

Chronic Infection

in the muscular wall. Small round cells or mononuclear lymphocytes were found in 59.

forty-two in Divisions I and II: two or three lymphocytes around an odd minute vessel; pathologically insignificant. (Fig. 12).

Fig. 6.

Localized thickening of the intima × 100, bleeding uterus, age 43, multipara.

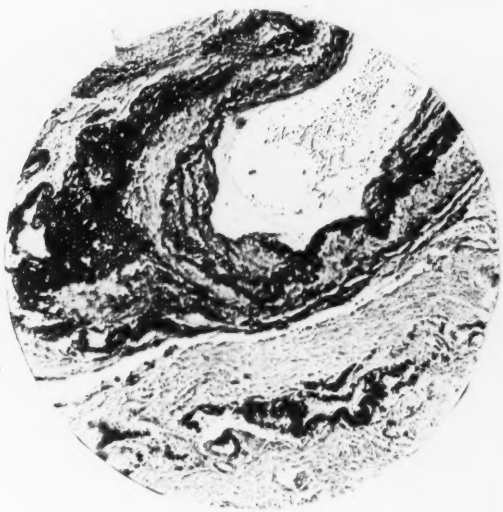

Fig. 7.

Localized thickening of the intima × 100, control uterus, age 48, multipara.

Fig. 8.

Thickening of the intima × 100, bleeding uterus, age 30

Fig. 9.

Thickening of the intima × 100, control uterus, age 32.

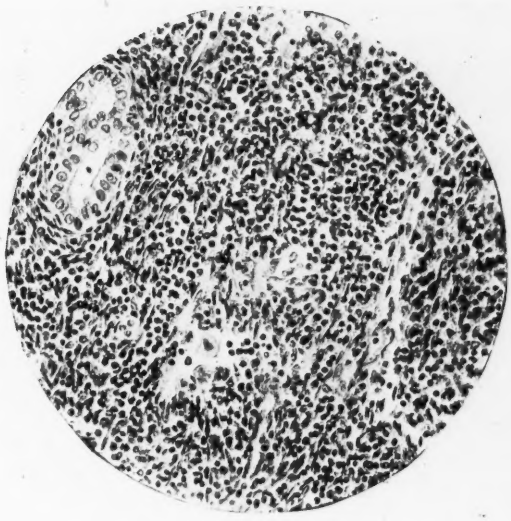

Fig. 10.

Many small round cells with some polymorphonuclear leucocytes in the endometrium ×200.

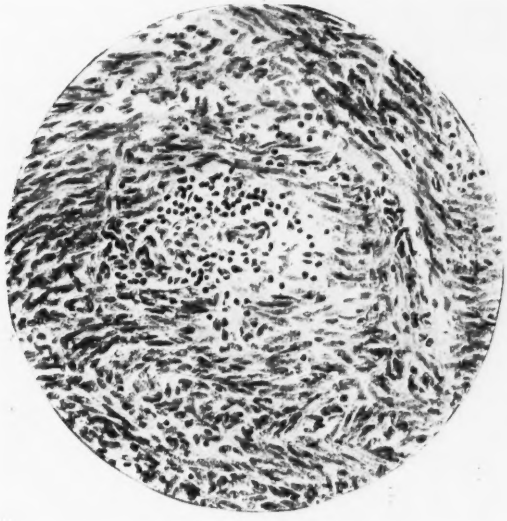

Fig. 11.

Perivascular focus of small round cells with a few polymorphonuclear leucocytes in the wall of the same uterus ×200.

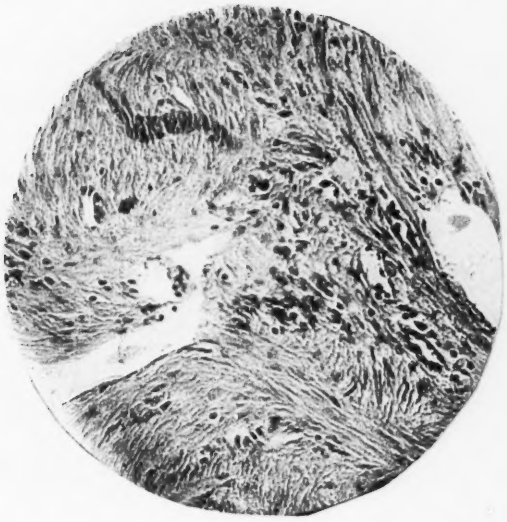

Fig. 12

Scanty small round cells near a group of small vessels in the musculature ×200.

Fig. 13.

Many small round cells near a small blood-vessel in the musculature ×100.

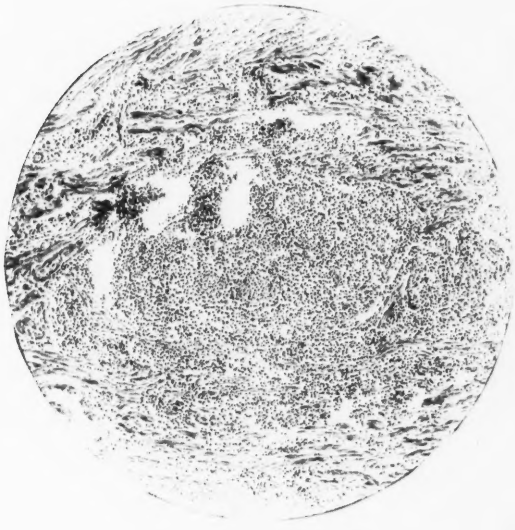

Fig. 14.

Large solitary focus of small round cells in outer third of wall ×80.

Fig. 15.

Smaller solitary focus of small round cells in inner half of wall ×100.

ten—lymphocytes more abundant and widely spread (Fig. 13):
in three of the ten an additional solitary focus of small round cells without polymorphonuclear or plasma cells;
in two of the three in the outer half;
in one of the three at the junction of the inner and middle thirds of the muscular wall.
The solitary focus resembled the foci familiar in chronic interstitial nephritis (Figs. 14, 15 and 16).
In the whole of the ten a chronic toxic irritation, rather than a chronic bacterial infection, is suggested.

In Division III:
five: two or three lymphocytes around an odd minute vessel, pathologically insignificant.
two: lymphocytes more abundant and more widely spread; probably, as stated above, due to toxic irritation.

in the endometrium. The normal presence of small round cells introduces confusion; an excess of small round cells or mononuclear lymphocytes is reported in 16.

Divisions I and II.
13 3 acute infection
additional polymorphonuclear leucocytes.
10 chronic infection
3 of the 10—additional foci of small round cells.
4 of the 10—plasma cells: in 1 of the 4 five giant cells (Fig. 17).
9 of the 10—fibrous tissue excess.

Division III.
3 1 acute infection.
2 chronic infection.

Remarks on Chronic Infection.

Long-standing chronic infection in any organ is established by evidence of extensive round-celled infiltration, extensive fibrosis and ultimate diminution of total bulk.

In the 101 uteri an active chronic infection is inconsistent with the scanty histological evidence.

An existing chronic infection is not necessarily primary; it may be consecutive or secondary.

Remarks on the Endometrium.

In the 88 uteri of Divisions I and II, a relation was not observable between the varieties of the endometrium and the severity of the hæmorrhage; the histological changes were not inconsistent with Hitschmann and Adler's view that glandular and stromal hyperplasia belong to the normal menstrual cycle and not to either glandular or interstitial endometritis.

Conclusions.

From the pathological evidence embodied in the report and from the physiological observations of Hitschmann and Adler, the thesis is deducible that uncontrollable uterine hæmorrhage is a functional disturbance.

The disturbers, local and general, are numerous and varied. Among them arteriosclerosis, fibrosis uteri, chronic metritis, and chronic infective endometritis have been appraised too highly and too widely within the fields of gynæcological pathology and treatment.

A Short Review of the Clinical Evidence.

Curettage, at its best as a curative agency in the removal of the friable relics of conception two or three weeks and onwards after an early abortion, accumulates its failures elsewhere and many are referable to the diagnosis of endometritis.

The exalted influence attached to primary disease of the endometrium has been shaken from many directions; notably and within the scope of this review from cases of excessive uterine hæmorrhage, the curettings have too often revealed to the microscopist the cyclical tissue changes in an exaggerated, in an average, or in an attenuated degree.

Curettage succeeds and fails in both treatment and exploration contrary to expectations.

Within a series of cases of uncontrollable uterine hæmorrhage the uterus may be more or less under the influence of collateral local disease from the same or a dissimilar cause such as appendage disease, uterine new growths, and retained products of conception.

Table L (p. 120) gives the character of the 40 total complications distributed amongst 33 cases, which leave 71 uncomplicated cases.

The inclusion of complications is inevitable on the recognition of the paramount condition. An increasingly "menorrhagic" uterus after a brief period of amenorrhœa becomes by the incompletion of an unrecognized and recent early abortion a "metrorrhagic" uterus. The gynæcologist who has previously diagnosed the bleeding uterus finds it complicated by a small placental polyp (see p. 127). The obstetrician, if the abortion has been in evidence, makes the reverse entry of an abortion complicated by a bleeding uterus. Opportune additions at this point are (1) that the average abortion rate of 15 to 17 per cent. had not been exceeded,and (2) that sterility, in only 5 of 95 married women, was below the average rate.

For easy reference the more important clinical facts have been arranged in Tables A to L (pp. 115-120).

The following detailed reports of 8 cases (pp. 125-127) display the variable physical conditions amidst which the uterus bleeds.

complicated (1) enlarged bleeding uterus with bilateral hydrosalpinx.

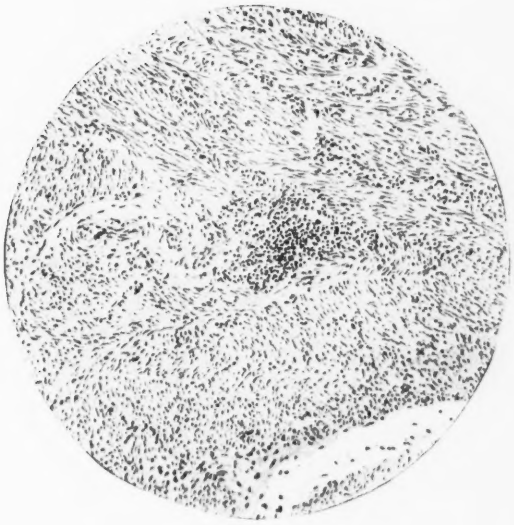

Fig. 16.

Small solitary focus of small round cells in outer half of wall ×100.

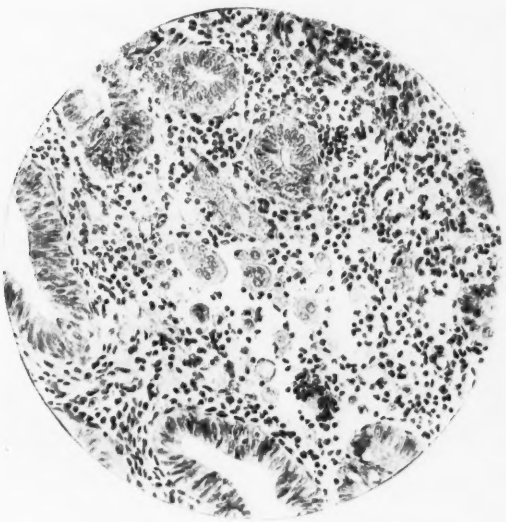

Fig. 17.

Giant cells in the endometrium ×200.

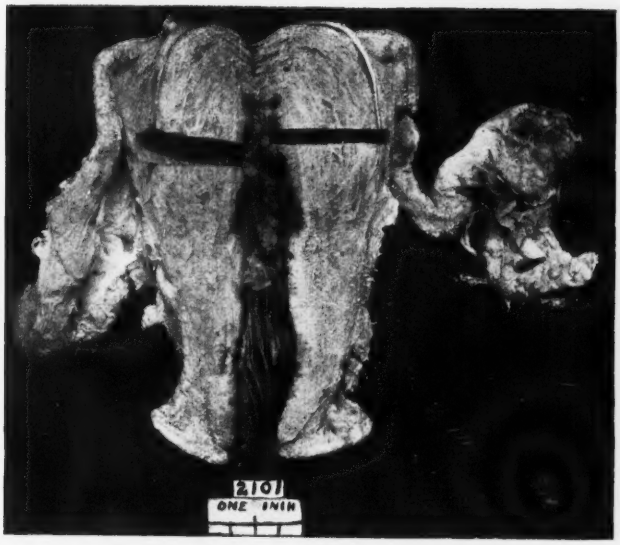

Fig. 18.

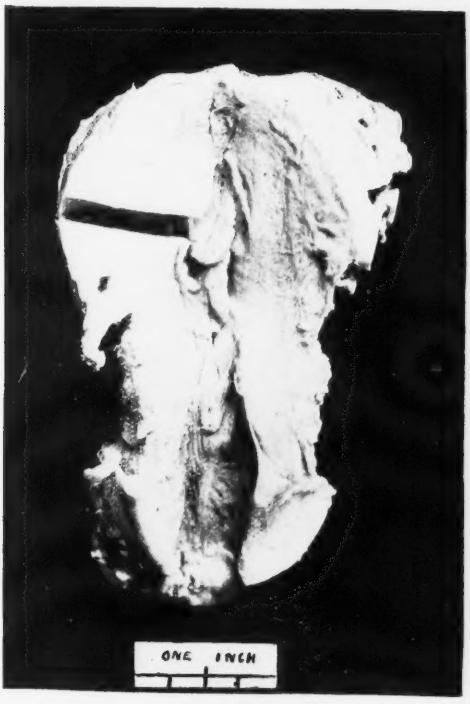

Fig. 19.

(2) enlarged bleeding uterus after bilateral appendage removal 7 years previously.
(3) fibroid, fibrosis uteri and diffuse adenoma.
(4) large uterus and tiny inaccessible fundal polyp.
(5) large benign polyp of years' standing at 72; 3 months' uterine hæmorrhage.
(6) bleeding uterus with incomplete early abortion.
uncomplicated (7) a typical bleeding uterus; 8 curettages in 11 years.
(8) a small bleeding uterus after several curettages in 3 years.

Enlarged uterus: its weight, $5\frac{1}{4}$ ozs.: external measurements, $4\frac{1}{4} \times 2\frac{1}{4} \times 1\frac{3}{4}$ inches: the wall $\frac{3}{4}-1$ inch thick: the vessels not prominent: the endometrium, $\frac{1}{8}-\frac{1}{4}$ inch, rough and nodular: excess of small round cells and plasma cells: in the muscular wall an occasional perivascular round-celled infiltration (Fig. 12): bilateral hydrosalpinx and oöphoritis.

H.G., aged 36: 10 years married: sterile: menses, 4/28 days: painful: increasingly excessive: became 4/14 days for the past 9 months. Vaginal radical operation, August 9, 1912 (Fig. 18).

Note.—The object lessons are the slight histological evidence of chronic metritis and the unusual predominance of uterine enlargement and hæmorrhage in the course of a pelvic infection of 10 years' standing.

Enlarged uterus: weight, $3\frac{3}{4}$ ozs.: external measurements, $4 \times 2 \times 1\frac{3}{4}$ inches: the wall $\frac{7}{8}-1$ inch thick: the vessels not prominent: the endometrium thickened and nodular.

J.J., aged 46: 10 years married: 2 abortions: menses, 5–7/28 days: excessive. Seven years ago both appendages were said to have been removed for "tumours." On September 20, 1911, during the vaginal hysterectomy for a 12 months' intermittent uterine hæmorrhage relics of the tubes or ovaries were not traced (Fig. 19).

Note.—The absence of evidence of infection in the uterus surrounded during life by dense adhesions.

Enlarged uterus: weight, 10 ozs.: external measurements, $5 \times 3\frac{1}{2} \times 3$ inches: thickness of wall $1\frac{1}{2}$ inches: endometrium, $\frac{7}{16}$ inch: a solitary small interstitial fibroid, $\frac{5}{8}$ inch.

A.P., aged 47: 26 years married: 7 pregnancies: 5 healthy children, the youngest 14 years old: one stillbirth at the full term between the 3rd and 4th children: 1 abortion at the 3rd month between the 4th and 5th children: menses, 5–7/28 days: regular: copious: no pain: no clots: leucorrhœa. In September 1911, one week after the last regular period and one hour after a fall downstairs,

uterine hæmorrhage commenced and continued for two weeks: the longest interval 13 days, the shortest 3 days: she was in bed nearly the whole five months until the hysterectomy on January 31, 1912. (Fig. 20).

After history. She is in perfect health: she has lost her anæmia and is now florid, January 19, 1914.

Pathological report. The uterine wall—a large amount of fibrous tissue, also a small number of round cells around a very few small vessels: the evidence is too meagre to establish any infection.

As (1) fibroid, (2) fibrosis uteri, and (3) diffuse adenoma, the preceding case can be classified.

Note.—Uterine fibroids, subserous and deeply interstitial as common growths, frequently incidental in other affections of the uterus have been classed as extraneous complications in 17 of the 104 bleeding uteri.

The inconsistency of including uteri with a smooth endometrium half an inch thick whilst excluding others with a smaller total bulk of endometrium as stalked or sessile adenomata; the impossibility of a size-limit to an acceptable localized adenoma; and the prolonged bloodless course of some adenomata justify the inclusion of the 20 stalked and sessile adenomata within the series.

The presence of an adenoma in the next two uteri is noteworthy.

Enlarged uterus: weight, $9\frac{1}{2}$ ozs.: external measurement, $4\frac{1}{2}$ inches long: thick walls: sessile adenoma, $\frac{3}{8}$ inch diameter at the right fundal angle: endometrium not thickened.

Mrs. B., aged 53: 7 children, the youngest aged 21 years: almost continuous hæmorrhage for 4 years: profound anæmia resembling pernicious anæmia, necessitating 4 months' total rest in bed. Curettage in April 1901, without improvement. Vaginal hysterectomy, July 25, 1901 (Fig. 21).

After history. In good health, January 1914.

Pathological report. Endometrium normal: no excess of fibrous tissue: diminution of elastic tissue: muscular hypertrophy: very slight perivascular round celled infiltration.

Note.—The tiny polyp, inaccessible to either curette or finger, in a four years' hæmorrhage from a uterus weighing $9\frac{1}{2}$ ozs., is an insignificant pathological feature.

The converse of the preceding tiny polyp is seen in the photograph of the uterus, 5 ozs. in weight laid open, after hysterectomy, to expose its contents—a large benign stalked adenoma.

S.H., 48 years married: 8 children, the youngest 34 years old. The menopause at 42 years of age after a normal menstrual life. Three months' constantly increasing continuous hæmorrhage at 72 suggested the possibility of fibroid and an early cancer (Fig. 22).

Fig. 20.

Fig. 21.

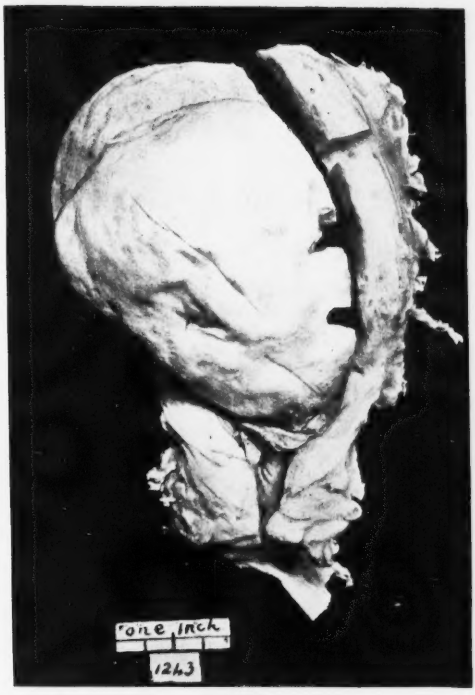

Fig. 22.

Fig. 23.

Fig. 24.

Fig. 25.

Note.—The protracted bloodless course of a large benign adenoma with a small proportion of fibrous tissue: the hypertrophy of the wall of the uterus at 72 confirms the chronic course.

Enlarged uterus: weight, $4\frac{1}{2}$ ozs.: external measurements, $4 \times 2\frac{1}{4} \times 1\frac{5}{8}$ inches: the wall $\frac{3}{4} - \frac{7}{8}$ inches thick with prominent vessels: the endometrium not thickened: a small polyp, $\frac{1}{2}$ inch in diameter, in the left fundal angle consisted of blood-clot, a little decidua and chorionic villi.

C.B., aged 42: 22 years married: 8 pregnancies: 7 children, the youngest aged 7 years: one abortion 16 years ago: menses, 4 years' increasing menorrhagia, now 8–9/21 days, the last period two weeks late continued, with two intermissions of two and ten days, for six weeks. Vaginal hysterectomy, January 24, 1913 (Fig. 23).

Note.—An incomplete abortion in an otherwise typical bleeding uterus.

Enlarged uterus: weight, 5 ozs.: external measurements, $3\frac{1}{2} \times 2\frac{1}{2} \times 2$ inches: the wall $1\frac{1}{8}$ inch thick, soft, with prominent vessels: the endometrium not thickened.

M.B., aged 46: 22 years married: 8 children, the youngest aged 8 years—all forceps deliveries: menses, 3–4/28 days: regular: leucorrhœa: menorrhagia for many years: first curetted on January 8, 1900; again in 1903; and six times during the next four years; the menorrhagia continued unabated: at Xmas 1910 she was bleeding 7—10 days every two or three weeks: since then rarely free from blood-loss for more than seven days: losing weight for five months. Vaginal hysterectomy, September 1, 1911 (Fig. 24).

Pathological report. Only an occasional lymphocyte and a doubtful increase of fibrous tissue in the muscular wall.

Uterus faintly enlarged: weight $2\frac{1}{2}$ ozs.: external measurements, $3 \times 1\frac{5}{8} \times 1\frac{3}{8}$ inches: wall $\frac{3}{4}$ inch, slightly soft: vessels very prominent: endometrium congested, not thickened.

A.S., aged 51: 26 years married: 10 pregnancies: 3 children, the youngest aged 17 years: 7 abortions, the last 14 years ago. Menses, originally regular, 7/28 days. In 1899 the uterus was curetted for post-abortum hæmorrhage: in 1909 one month's bleeding ceased spontaneously. In 1912 her doctor sent her to hospital with the statement that curettage had been repeated several times and failed. Vaginal hysterectomy, May 3, 1912 (Fig. 25).

After-history. January 1914 in good health.

Pathological report. Endometrium contains a large amount of blood: it resembles the senile type: fibrous tissue in the muscular wall not excessive: thickening of the intima of some of the large arteries: no excess of round cells in either endometrium or muscular wall.

A Summary of the Various Views of Uncontrollable Uterine Hæmorrhage.

(1) In 1897, Reinicke, in four cases, found arteriosclerosis and fibrosis: neither, in his opinion, sufficient to cause the menorrhagia: a second essential being an increased pelvic congestion probably initiated by the ovary.

(2) In 1899, Pozzi reported, in two uteri from patients aged 30 and 34 years, an increase of elastic tissue.

(3) In 1899, Sir John Bland Sutton, under the title "fibrosis uteri," called attention to three cases of menorrhagia in mothers from 35 to 45, uncontrolled by drugs, rest, or curettage: he described the enlarged uterus with thick tough walls and prominent vessels due to an abnormally excessive fibrous tissue formation replacing some of the muscular tissue as a remote result of septic endometritis.

(4) In 1905, Freeland Barbour reported a case as climacteric hæmorrhage due to sclerosis of uterine vessels.

(5) In 1906, Gardner and Goodall, from 9 cases of "Chronic Metritis and Arteriosclerotic Uteri," separated the simple and the complicated chronic metritis by the absence or the presence of appendage disease: the simple metritis in two groups—(*a*) those arising from subinvolution, infection, or one of many other causes and showing a deposit probably of elastic tissue; and (*b*) those having a true arteriosclerotic origin characterized by a true fibrosis of the uterine wall. A muscular and fibrous tissue increase: the hæmorrhage, accentuated by, but not due to, changes in the endometrium, was attributed to a combination of vascular changes, fibrosis, and relative muscular insufficiency.

(6) In 1906, Addinsell reported as chronic infective metritis four cases in younger women, 29 to 34 years of age.

(7) In 1907, Shaw, as chronic metritis in 38 patients of average age, 38 years, described simple hypertrophy, never primary, usually secondary, to chronic endometritis, and with no evidence of active inflammation.

(8) In 1908, Ehrenfest suggested that the hæmorrhage might be brought about by increased muscular tone—a form of spasm as found in some neuroses.

(9) In 1909, Mrs. Willey considered that cases of menorrhagia, not due to uterine new growths or tubal disease, were associated with either (*a*) congestion of the uterus arising from local or general causes, or (*b*) inefficient muscular action, either a local degeneration or part of a general atony.

(10) In 1909, Arspach, as "Myopathic Uterine Hæmorrhage," described two varieties of chronic metritis—(1) actual fibrosis after acute metritis associated with adnexal disease; (2) chronic from the onset of subacute infective metritis, subinvolution, and pelvic congestion. The hæmorrhage, purely the result of myopathic disease,

may be due to absence of the normal increase of connective and elastic tissues with resulting engorgement and congestion. In many cases the symptoms are not dependent on histological changes in the muscular wall, but arise from fungous endometritis, hypertrophic or cystic cervix, displacements, inflammation of the adnexa or pelvic cellular tissue, or congestion of the pelvic blood-vessels from cardiac or renal disease or general weakness.

(11) In 1910, Goodall described an increase in elastic tissue.

Hysterectomy. A defence of the operation is not within the scope of this report.

Mortality. There were two deaths in the 104 cases. In the appendices (A and B) are the clinical records of the two cases.

Acknowledgments by Professor Briggs.

In the Gynæcological Laboratory of the University of Liverpool, as Ethel Boyce Fellow in Gynæcological Pathology, Dr. Hendry has, during the past three years, assiduously conducted the research on which the report is based.

The Laboratory Assistants, Messrs. Macdonald, Norman, and Robertson, have prepared the sections and taken the photographs.

The whole of the uteri were from the hospital and private practice of Professor Briggs with the exception of one kindly presented by Dr. Sumner, of Waterloo.

Professor Beattie and Professor Ernest Glynn have very generously advised or approved at critical points in the work. Grateful thanks are given to them; also to Professor Benjamin Moore and Professor Lorrain Smith for guidance on the important question of fatty changes in the uterine wall.

Appendix A.

Small uterus: weight, $1\frac{3}{4}$ ozs.: external measurements, $3 \times 1\frac{1}{2} \times \frac{3}{4}$ inches: the vessels prominent: the endometrium not thickened: the cervix large.

C.J., aged 69: 30 years married: 3 pregnancies: 2 children, the youngest aged 26 years: one abortion: the menopause at 50 after a normal menstrual life: prolapsus during 28 years after a difficult first confinement: for two months two or three days' hæmorrhage with intervals of two or three days. Diagnosis, cancer of the cervix. Vaginal hysterectomy and perinæorrhaphy, January 13, 1911. She died on February 16, 1911, from hypostatic pneumonia (Fig. 26).

Appendix B.

Enlarged uterus: weight, 7 ozs.: external measurements, $3\frac{3}{4} \times 2\frac{3}{4} \times 2$ inches: thickness of wall 1 inch: endometrium not thickened: small clot in lower half of body: cervix eroded: normal appendages also removed.

A.C., aged 48: 22 years married: 4 children, the youngest aged 13 years: 2 abortions: menses normal until November 1912: 2 months' profuse hæmorrhage which continued in lessened amount until the abdominal hysterectomy, April 25, 1913: a double femoral hernia also radically cured at the same time. She died on April 30, 1913, from pulmonary embolism (Fig. 27).

BIBLIOGRAPHY OF ARTICLES QUOTED.

1. Reinicke. *Archiv für Gyn.*, Bd. lxii, 1897, s. 340.
2. Pozzi. *Revue de Gyn.*, 1899, vol. iii.
3. Bland Sutton, Sir J. *Brit. Med. Journ.*, 1891, vol. i; 1904, vol. ii.
4. Barbour, A. H. F. *Journ. of Obst. and Gyn. British Empire*, 1905, vol. vii, p. 387.
5. Gardner and Goodall. *Brit. Med. Journ.*, 1906, vol. ii.
6. Addinsell. *Journ. of Obst. and Gyn. British Empire*, 1906, vol. x, p. 6.
7. Shaw, Fletcher. *Journ. of Obst. and Gyn. British Empire*, 1907, vol. xi, p. 124.
8. Ehrenfest. *Amer. Journ. Obst.*, 1908, vol. lvii, p. 261.
9. Willey. *Journ. Obst. and Gyn. British Empire*, 1909, vol. xvi, p. 236.
10. Arspach. *Surgery, Gyn. Obst.*, September 1909.
11. Goodall. *Amer. Journ. Obst.*, January 1910.
12. Hitschmann and Adler. *Münch. m. Woch.*, 1909, No. 41, s. 2130.

BIBLIOGRAPHY OF ARTICLES CONSULTED.

Adami. "Principles of Pathology."
Albrecht. *Münch. med. Woch.*, 1910, No. 23.
Allbutt and Rolleston. "System of Medicine," 1910, vol. vi.
Allbutt, Playfair and Eden. "System of Gynæcology."
Barbour and Watson. "Gynæcological Diagnosis and Pathology," 1913.
Becton. *Journ. Path. and Bact.*, 1909, vol. xiii.
Bell, W. Blair. "Principles of Gynæcology," 1910; Proc. Roy. Soc. Med., vol. i, pt. ii.
Bonney, V. *Brit. Med. Journ.*, 1910, vol. i; *Lancet*, 1911, vol. i; Proc. Roy. Soc. Med., vol. iv, pt. ii.
Bossi. *Ann. d. Obst.*, June 1908.
Clarke. *Journ. Obst. and Gyn. British Empire*, Sept. 1911.
Cheron. *L'Obstetrique*, Nov. 1909.
Colwell and Becton. *Arch. Middlesex Hosp.*, Sept. 1911.
Cristia and Denk. *Wiener m. Woch.*, 1910, No. 7.
Daniel. *Journ. Obst. and Gyn. British Empire*, 1908, vol. xiii.
Donald, A. *Journ. Obst. and Gyn. British Empire*, 1907, vol. xi.
Donald, A., and Shaw, Fletcher. Proc. Roy. Soc. Med., vol. iv., pt. ii.
Dyson. *Journ. Path. and Bact.*, 1912, vol. xvii; 1913, vol. xviii.
Duhrssen. *Archiv f. Gyn.*, Bd. 85, 1908.
Eden. "Manual of Gynæcology," 1911.
Findlay. *Amer. Journ. Obst.*, July 1905; Trans. Amer. Soc. Gyn., 1905, vol. xxx.
Fraenkel. *Archiv f. Gyn.*, Bd. lxxxviii, 3, 1908.
von Franque, O. *Zeits. f. Geb. und Gyn.*, Bd. lxvi.

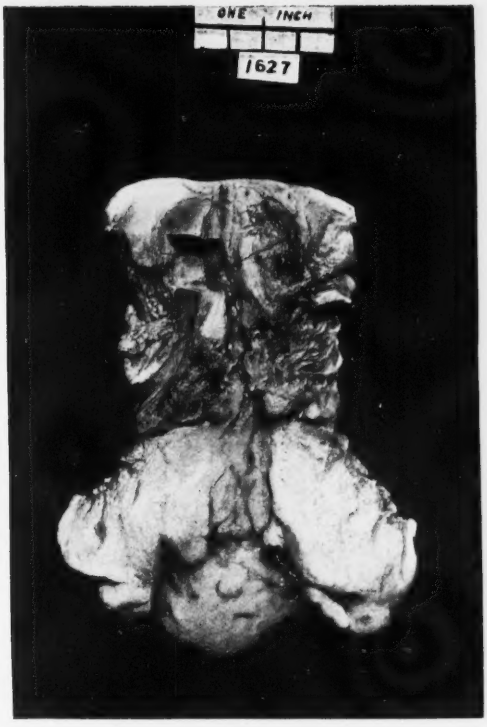

Fig. 26.

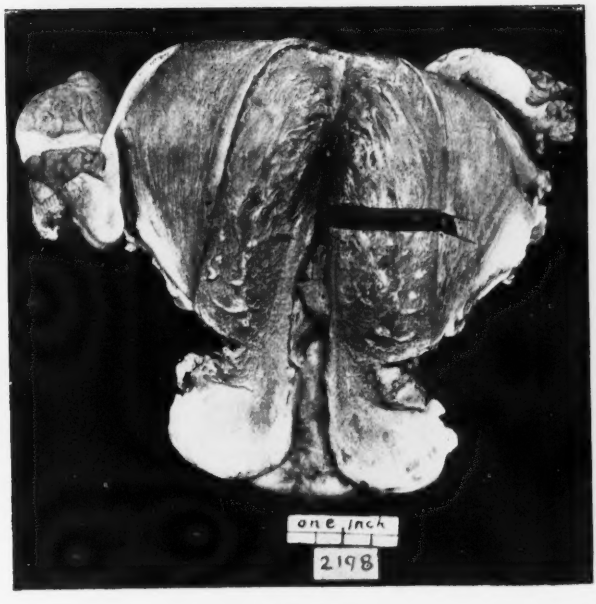

Fig. 27.

Gardner and Norah. *Journ. Obst. and Gyn. British Empire*, vol. xvi.
Gluzinski. *Wien. klin. Woch.*, 1909, No. 48.
Goodall. Studies Roy. Vict. Hosp., Montreal, vol. ii, No. 3 (Gyn. 11).
Herman and Maxwell. "Diseases of Women," 1913.
Hueter. *Münch. med. Woch.*, 1908, No. 27.
Kon and Karaki. *Virchow's Archiv*, Bd. 191, Ht. iii.
Lockyer. Proc. Roy. Soc. Med., vol. v, pt. ii.
Lorenz. *Archiv f. Gyn.*, 1903, Bd. 70, Ht. ii.
MacCordick. *Journ. Path. and Bact.*, vol. xvii.
MacDonald. *Journ. Obst. and Gyn. British Empire*, 1908, vol. xiii.
MacGregor. "Pathology of the Endometrium," 1905.
Mittelmann. *Münch. med. Woch.*, 1910, No. 23.
Norris and Keene. *Surg. Gyn. Obst.*, Jan. 1910.
Pankow. *Archiv f. Gyn.*, Bd. lxxx, Ht. ii.
Pölzl. *Wien. klin. Woch.*, 1910, vol. vii.
Rabinovitz. *Amer. Journ. Obst.*, Jan. 1910.
Roberts. "Gynæcological Pathology," 1901.
Savill. Trans. Path. Soc., London, 1904.
Schroeder. *Journ. Obst. and Gyn. British Empire*, vol. xv, p. 331 (abstract).
Smith, Lorrain, and Mair. *Journ. Path. and Bact.*, 1906, vol. xi; 1908, vol. xiii.
Theilhaber. *Archiv f. Gyn.*, 1903, Bd. 70, Ht. ii.
Whitehouse. *Lancet*, vol. i, 1912.

Still-Births' Registration.*

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The first difficulty which arises in connection with the consideration of still-births' registration is one of definition. What is registration, and what, more particularly, is meant by a still-birth? The difficulty, as will appear, is a very real and a fundamental one.

Let *registration* be taken first, for it is the more manageable of the two. Notification is not registration. Notification is giving notice or making intimation; registration implies the two acts of "declaration" and "inscription." There is registration of a death, but there is only notification of an infectious disease. In connection with births, there is in this country (Great Britain), both notification (within 36 hours) and registration (within forty-two days); but the former is, by the Notification of Births Act of 1907, only in force in the sanitary districts which have adopted it in the prescribed manner. In England and Wales it has been adopted in 316 out of the 1,822 local government areas into which the country is divided; but these 316 areas represent nearly 18,000,000 persons out of a total population of 36,000,000. In the places which have notification as well as registration, a birth, therefore, is notified or declared twice, once within 36 hours of its occurrence, and again at any time within forty-two days. The persons upon whom the duty of declaring the birth is laid differ in the two cases. In notification the task devolves upon the father of the child (whether it be a legitimate or an illegitimate one) if residing in the house at the time of the birth, and upon any person in attendance upon the mother at the time (thus bringing in the doctor and the nurse or midwife), or called in to render assistance within six hours thereafter. In registration the declaration has to be made by the father or mother if the child be legitimate, by the mother alone if illegitimate, and in their default by the occupier of the house in which to his knowledge the child was born, and upon every person present at the birth, and also upon the person having charge of this child. Whilst notification does not entail so much as registration, it is an interesting fact that in one respect (that of still-births) the Notification of Births Act of 1907 for this country goes further than the Registration of Births Act of 1874; the latter is limited in its requirements to the births of children born alive, whilst the former (in the areas, of course, in which it has been adopted) calls for declaration of birth with respect to children born alive and to those born dead after 28 weeks' uterine gestation.

*Read before the Edinburgh Obstetrical Society, March 11, 1914.

This is a very important matter to bear in mind; it means that in the local government areas in which the Act has been adopted there is notification, although not registration, of a certain number of still-births. This brings up the definition of the word *still-birth*.

Sir James Murray's great work, *A New English Dictionary upon Historical Principles*, has unfortunately not reached the word *still-birth*, and cannot, therefore, be cited as an authority upon the definition of the term; but I notice that opposite *dead-birth* the Editor has placed "still-birth" as a synonym. Dr. Johnson defines *still-born* as "born lifeless, dead in the birth"; and to Webster *still-birth* is "the state of being born without life, a thing born without life." The medical lexicographers of more recent times follow in the same track, the *Sydenham Society's Lexicon* saying that still-born is "born lifeless," Gould defining still-birth as the birth of a dead child, and Foster in *Appleton's Medical Dictionary* giving "dead at the time of birth" as the meaning of still-born. In *Green's Encyclopædia and Dictionary of Medicine* I did not define still-birth, but cross-referenced it to the article on the New-born Infant,[1] where I wrote as follows: "Asphyxia neonatorum, apnœa neonatorum, still-birth, or apparent death of the new-born, is a condition of the infant at birth in which there is a stoppage of the functions of animal life, with absence of respiration, and absence, or rather weakness, of cardiac action; a still-born child is not necessarily a dead child, but the condition may pass into death." My reason for expressing the condition of still-birth in the above phrases is easily stated; every obstetrician meets with cases in which, although the infant is born apparently lifeless, in which it neither breathes nor moves, he is nevertheless able by appropriate means to resuscitate it (I use the word "resuscitate" here, but must criticise its employment in this conection later); it was still-born, and yet it now lives; consequently I do not regard "born dead" as a correct definition of still-born. The whole difficulty arises on account of the lack of a proper realization of the true nature of ante-natal as compared with post-natal life, and to this matter I shall return after the various legal and administrative statements of the meaning of still-birth have been taken notice of.

By far the most valuable contribution which has been made to the proper understanding of still-births and their registration of recent years is that contained in the Report of the Special Committee of the Royal Statistical Society on Infantile Mortality, published in December, 1912.[2] Dr. Reginald Dudfield's paper on the Report,[3] and the discussion which followed it also contain much that is of interest for the elucidation of the subject. One feels that a great advance has been rendered possible in regard to legislation upon the subject

1. Green's *Encyclopædia of Medicine and Surgery*, vii, p. 57.
2. *Journal of the Royal Statistical Society*, lxxvi, pp. 27-87, 1913.
3. *Ibid.*, pp. 1-26.

of still-births, their registration, their investigation, their causation, and ultimately their prevention. The Committee addressed inquiries to 136 registration officers all over the world, and received replies from 103. The countries, colonies, and states which did not reply were Greece, Portugal, Russia, Servia, China, Brazil, Chile, Guatemala, Honduras, Mexico, certain British possessions (including British Columbia, British Honduras, Cyprus, Falkland Islands, Fiji, and Quebec), some German states (viz. Baden, Brunswick, Mecklenburg-Schwerin, Oldenburg), and twelve of the states of the United States (including Alabama, Arkansas, Delaware, Florida, Kentucky, Louisiana, South Carolina, etc.). The questions asked had to do with birth-registration, death-registration, and the registration of still-births, so that on these matters it may be taken for granted that the Committee's report puts us in full possession of all the facts for the whole civilized world with the exception of the places above named.

I cannot spare space to discuss the information gained regarding the registration of births, although it may be noted, in passing, as a somewhat surprising fact that this practice is not compulsory in Finland, Iowa, Mississippi, and North Carolina and Virginia (outside town limits); but I shall pass at once to the replies regarding still-births and their registration.

The registration of still-births is not compulsory in the following countries and colonies:—England and Wales, Scotland, Ireland, Gibraltar, Cyprus, Hong-Kong, Gambia, Orange Free State, Sierra Leone, Jamaica, New Brunswick, New South Wales, New Zealand, Queensland, South Australia, Tasmania, Victoria, Denmark, Mississippi, New Mexico, North Carolina and Virginia. In other words, it is not compulsory in Great Britain and in certain of her dependencies whose laws have been founded on her model, in Denmark, and in a few of the individual states of the United States of America. But with regard to Denmark, it is noted that "although not prescribed by law, the registration of still-births is generally regarded as compulsory." In some of the states of the United States, too, although registration is not compulsory, there are circumstances which modify the effect of the omission. Thus, in New Mexico the absence of registration seems to be due to bad wording of the law, and the burial of still-born children is not possible in "legal cemeteries" without death certificate. In North Carolina, also, still-births are entered on death registers, for burial permits are necessary. These additional facts serve to throw into clearer light the outstanding result of this part of the inquiry, viz., that it is in Great Britain and the countries whose laws have been framed on hers that still-births are not compulsorily registered. It has also to be noted that in Malta, Ceylon (in part), India, Strait Settlements, Cape of Good Hope (in a degree), Mauritius, Natal, Transvaal,

Alberta, Bermuda, British Guiana, Manitoba, Newfoundland, Nova Scotia, Ontario, and Western Australia, there is either registration of still-births or else an equivalent, *e.g.*, they are regarded as "births." It is fair, therefore, to say, and to say with emphasis, that, granting the usefulness of still-births' registration, Great Britain and Ireland have been singularly dilatory in taking legislative steps to acquire powers to discover the still-birth rate in the population living in them.

One turns with hopefulness to the numerous countries which have compulsory registration of still-births in order to obtain from one or other of them a satisfactory definition of the word still-birth; but one is doomed to disappointment, for the Report of the Special Committee of the Royal Statistical Society contains the following surprising statement: "So far as can be ascertained no legislature has, up to the present, enacted any definition of still-birth, and the only guidance afforded to those required to declare and inscribe such births is that afforded by regulations made by the various statistical offices." Even the interpretations adopted for registration purposes differ so widely among themselves as to introduce great confusion into the subject and to make comparative statistics impossible of obtainment, or at least useless for practical application. Here then is a very strange state of affairs; most of the civilized countries of the world make the registration of still-births compulsory, yet none of them has enacted any definition of still-birth, and there is great diversity of usage amongst them as to the meaning of the terms as officially applied in the working of registration; nevertheless the practice of registration is going on in these countries and has been going on in some of them for a long time. It is no wonder that the first conclusion drawn by the Special Committee of the Royal Statistical Society is that "it is desirable that an international definition of 'still-birth' should be adopted."

Some of the methods in which the difficulty of absence of precise and legal definition is got over may be referred to. In the first place, many countries simply require all *births* to be registered, and so of course still-births are, so to say, caught in the meshes of the registrational net; but there is reason to believe that all are not so caught. This is the practice, for instance, in Newfoundland, Nova Scotia, Belgium, and California; but obviously this plan of massing together the births of living and dead infants cannot be looked upon as ideal. In the second place, other countries supply their statistical or registration officers with regulations regarding still-births; but it must at once be admitted that these differ so widely both as regards the state of the infant which is to be called still-born and the age of ante-natal life at which the fœtus shall have arrived in order to come within the scope of registration that confusion rather than perspicuity has been their effect. One cannot help pitying the

officials in their task and deploring the necessarily unsatisfactory nature of the results of their labours.

Some examples will serve to illustrate what has been stated above. In Denmark "every fœtus coming into the world without any sign of life during or after the 28th week of pregnancy is counted as a still-birth; an embryo expelled (*dead*) before the 28th week is reckoned as an abortion." In Hungary, "children born after seven months' gestation without signs of life are registered as still-born; those born earlier are ignored." In Japan, a very early date is fixed, and "registration of a fœtus born after four months' gestation is required." A still-born child in Switzerland is one "dead before birth or dying during birth." In Ceylon, "the term still-birth means a child born after the 28th week of gestation as dead, or apparently dead and not called back to life"; and one cannot but feel that in this attempted definition there are signs of light. In Nova Scotia, "a 'still-birth' is a child born dead." In Western Australia, "a still-born child means any child of seven months' gestation or over not born alive"; but for the purposes of the Registration Act (1894) a still-born child is "deemed to have been born alive and to have subsequently died." In Missouri, children "dead at birth" are reckoned as still-born; so also in Montana. In Massachusetts, a still-birth is a child "born dead"; and so also in Minnesota. In Nebraska, it is "a child who has not breathed"; and in Iowa nearly the same words are used; whilst in New Hampshire, it is "a viable child not born alive." In Norway, the interpretation adopted for registration purposes is that "embryos born without signs of life after the commencement of the eighth month" are counted as still-births; whilst in Sweden, "a child is described as living-born if it breathes after birth, as still-born (dödfödd) if it manifests no signs of life after birth." In Egypt, a still-born child is "a child not breathing at the time of birth"; in Gibraltar, "a child who was not born alive"; in India, "a viable child reported to have been born dead"; in Gambia, "one who has died before delivery, *i.e.*, in its mother's womb"; in the Mauritius, "a child of seven months' gestation (or more) which died before delivery"; in Jamaica, "a child who has had no separate life from that of its mother." The interpretations in the German states also differ. In Anhalt a still-born child is "one showing no sign of life prior to complete separation from the mother"; in Lubeck, it is "a child of six or more months' gestation, and 32 cm. length, born dead"; in Hesse, it is "one born dead or dying during birth after six months' gestation (or longer), the fœtus being not less than 30 cm. long"; in Saxony, it is "an embryo born dead after a gestation of six months or longer"; and in Saxe-Coburg Gotha, the law distinguishes between a child born dead and one dying in birth.

So far the interpretations have rung the changes on "dead-born,"

"dying in birth," and "without signs of life," whilst some have introduced ante-natal age limits (4 months, 6 months, 7 months, 28 weeks, viability), and others have even mentioned the length of the fœtus necessary for registrational purposes. All these regulations are confusing and complicated enough; but the full limit of perplexity and obscuration, even to stupefaction, is reached only with the regulations in New York, France, Belgium, Holland, Spain, Prussia and our own country. The New York interpretation is comparatively harmless, although it introduces a new characteristic into the matter, viz., that of sex: it is, "a child dead after having never breathed and having attained sufficient development to determine sex." Obviously if this interpretation, which is the one "prescribed by the State Department of Health," be strictly acted upon it will carry the earliest age for registration pretty far back in ante-natal life. The same element of the recognition of sex crops up in a decision of the Court of Besançon in France in 1844, from which it appears that "the registration of a still-birth is held by French jurisprudence to include, not only children who have been the full term in the womb, but all such as are born sufficiently formed for it to be possible to declare the sex." In France at the present day the interpretation of still-born child for registration purposes is "a child born dead or dying before the declaration of birth." Now the last phrase of the foregoing interpretation introduces new difficulties and a certain degree of inaccuracy into statistics; and this applies to Belgium, Holland and Spain, as well as to France, for in all these countries the lists of the still-births must necessarily include some children dying between birth and declaration or registration. Further, the regulation has necessitated the coining of a new term for the children born alive but dying before declaration, and Bertillon has called them "dits mort-nés," the others being simply "mort-nés." Since the time allowed for registration in these countries is three days, and since a good many babies die in the first hours of life, it is probable that a considerable proportion of the babies registered as still-births were really not so in the sense of the word as used in other parts of the world. In Belgium, the confusion has been in some measure cleared up by calling the one class "les enfants présentés sans vie," and the other the "mort-nés" proper. In Italy also, and in Roumania, there is no distinction for registration purposes between a still-born child and one born alive and dying before registration of birth. In Prussia, there are three classes of births called still-births: there are full-term children born dead, there are embryos born dead after six months' (180 days') gestation, which are more than 32 cm. in length, and there are embryos closely approximating to the conditions just named.

In the British Isles, although the registration of still-births is not compulsory, there is nevertheless an official interpretation of still-birth.

In England, "a live-born child for registration purposes is defined as one that lived (for however short a time) after complete expulsion from the body of its mother; all others are to be regarded as still-born." Or, putting the definition affirmatively, "a child is deemed to be still-born when after being completely born it has not breathed or shown any sign of life." In Scotland, "if the child has lived, *i.e.*, had separate existence from its mother, and has breathed, both birth and death are recorded; otherwise no entry falls to be made in the registers." In both countries there is the Notification of Births Act which local authorities may, with the consent of the Local Government Board, adopt, and by which when so adopted every birth, even although it be a still-birth, must be notified within 36 hours. The interpretation of still-birth in connection with this Act is the birth of a dead child which takes place at or later than the 28th week of pregnancy. Reference may here be made to two definitions of still-birth, which one may term private ones. Dr. Reginald Dudfield's is: "a 'still-born child' means a child born after a period of gestation of not less than seven lunar months (28 weeks) whose heart has ceased to function before the whole of the body (including the head and limbs) of such child has been completely extruded from the body of the mother; and still-birth means the birth of a still-born child." The other definition is that of the Obstetrical Section of the Royal Society of Medicine: "a still-born child means a child which measures more than thirteen (13) inches in length from the top of the head to the heel, and which, when completely extruded from the body of the mother, (head, body, and limbs, but not necessarily the after-birth), exhibits no sign of life by crying, or breathing, or by pulsation in the cord at its attachment to the body of the child or by beating of the heart."

What has been stated in the above paragraphs is an index of the amazing confusion into which the whole subject of still-births and their registration or notification has passed. Indeed it is not a full revelation of the whole entanglement, for I have not touched upon the diverse procedures which have been adopted in different countries as to the statistical place accorded to still-births; as a matter of fact they are entered in some lands as births, in others as deaths, in others as both births and deaths, and in yet others separately from births and deaths. In the great majority of the countries the last-named place is that given to them. But enough of the demonstration of the registrational and definitional labyrinth into which the subject of still-births has got. Is there any Ariadne thread which can be used to get the investigator out, or must he cut his way through this legislative and lexicographic jungle? I venture to think that by the way in which the confusion was introduced the path of escape may be found. Let me explain.

The greater part of the confusion in the matter of still-births is

due to the lack of correct views regarding the nature of ante-natal life and the peculiarities of the physiology of the fœtus, and much of the perplexity in which one finds one's self in trying to elucidate the subject may be got rid of by gaining right notions respecting the life before birth and by employing them in the revision of the terminology of still-births, live-births, dead-births, and the like.

To begin at the beginning, life does not commence at birth but before it. A special kind of life begins then, which may, for the sake of distinction, be called post-natal; but the fœtus has already been alive biologically, if not legally, for several months, and the embryo before him had a vitality so extraordinary as to enable all the complexities of organo-genesis to be exhibited in a marvellously short number of weeks. This life of the fœtus and embryo I have called ante-natal, and have claimed for it a reality and an importance which have not always been accorded to it by others. I began using the word in association with pathology as a convenient one to designate the many morbid states which had their origin before birth. As far back as 1892 I published the first volume of a book entitled *Diseases and Deformities of the Fœtus*, and gave to it the sub-title of *An Attempt towards a System of Ante-Natal Pathology*. I might, of course, have called my subject pre-natal pathology or medicine, but for some passing or accidental reason which I have now forgotten I chose the word ante-natal. It had the high sanction of Sir James Murray's *New English Dictionary*. It had been used in 1817 by Shelley, who spoke of "memories of an ante-natal life," by Kingsley in 1848, when he referred to "heaven my spirit's ante-natal home," and by Farrar in 1879, when he described the "ante-natal predilection for Israel and detestation of Esau"; it could not therefore be wrong for the physician to employ the term and follow the glossarial example of the poet, the novelist, and the clergyman.

Ante-natal life has, in comparison with and in contrast to post-natal life, this one great differentiating character, its respiration is a tissue one, made possible by the placenta from which oxygen is drawn over from the maternal blood and through which carbonic acid and other things are sent over into the mother from her fœtus; the respiration of post-natal life is a pulmonary one and an atmospheric one. Ther are other differences between the two modes or forms of life which will occur to anyone who thinks for a moment, but they are far less striking than the resemblances, for in both ante-natal and post-natal life there is cardiac action and circulation, in both there are free muscular movements, in both there is activity of the nervous system, in both there is blood formation, and in both the liver, kidneys, system, intestine, ductless glands, and the like are physiologically active, although of course the particular circumstances of ante-natal life call for a far smaller exhibition of functioning than do those of post-natal existence. Save in the matter of

respiration the differences in the two lives are those of degree rather than of kind. Of course there is a difference too between the ante-natal life of the early months of intrauterine existence and that of the later months, but this difference also is more one of degree than of quality. I am aware that such things as viability and its date are spoken of; but I lay no great stress upon the former from the standpoint of still-births, and I affirm that the latter cannot be fixed because every invention for the keeping alive of prematurely born infants and every improvement in infantile hygiene must push back the date of viability nearer to conception.

There is, however, a very great difference between the life of the first weeks after impregnation and that of the months which follow it, for in the former it is embryonic, formative, or developmental activity which is strongly in evidence, whilst in the latter it is life and growth very much the same (except, of course, for the pulmonary respiration) as they are found post-natal. Further, the embryo in its decidual membranes is quite easily distinguished from the fœtus with its placenta, and if it be desired to introduce a classification at all into ante-natal life, it will be better to divide it into embryonic and fœtal rather than into viable and non-viable.

But it may be asked, when does ante-natal life really begin, what is its actual *terminus a quo*? I regard it as commencing when the spermatozoon effectively penetrates the ovum and sets in action the long series of events which end at birth. If a later date is attempted all the ambiguity regarding quickening, stirrage, feeling life, and the rest is around us, and difficulty is everywhere. To quote from a recent article by A. E. Crawley[1] on fœticide, " modern biology holds that the zygote is a new individual from the moment, not of " conception " in the vague and popular sense, but of penetration of the ovum by the spermatozoon; and modern legislation holds the same view, but is less severe upon fœticide than upon infanticide." Tertullian, many hundreds of years ago, went even further, when he said, " He also is a man who is about to be one; even every fruit already exists in its seed." Individual ante-natal life begins at impregnation. There is a sort of vitality before that, the life of the sperm cell and the germ cell among the other cells of the body; but it lacks the individuality of the life of the zygote, and need not be dealt with now.

For nine months therefore before birth there has been individual life. Further, death may occur during this life as well as during post-natal existence, and the great sign of this death is cessation of cardiac action; there are other signs of course, even rigor mortis may occur, but stoppage of the heart is the decisive indication of ante-natal death. There can be no help got from cessation of pulmonary respiration, for the unborn infant does not respire through the lungs. The outstanding distinction, therefore, between

1. Crawley, A. E. *Encyclopædia of Religion and Ethics*, vi, 56, 1913.

ante-natal death and post-natal death is that in the former there is no cessation of pulmonary respiration, whereas in the latter there must be. Ante-natal life lacks something which post-natal life has, viz. pulmonary respiration; consequently ante-natal death likewise must lack a characteristic feature. Ante-natal life has placental circulation as the analogue of post-natal pulmonary respiration, and ante-natal death has the stoppage of placental circulation as its characteristic sign. The other marks of difference are, so to say, accidental; they are due to the ante-natal environment which does not suffer the presence of putrefactive microbes, and so, whilst it permits maceration, does not allow putrefaction (unless indeed by man's interference). These macerative changes are important because they are easily recognizable; and when recognized they enable one to say that ante-natal death has taken place some days previous, it may be weeks or even months, but it is certainly days. It ought perhaps to be added that now and again cases of the birth of so-called macerated living fœtuses have been recorded; in all these instances the maceration, I believe, consisted simply in desquamation of the cuticle from some morbid state of fœtal life.

With these facts in full view, it is permissible to attempt the construction of some definitions, and, first of all, how is live-birth to be interpreted. The present definition or interpretation for registrational purposes is that a "live-born child is one that lived (for however short a time) after complete expulsion from the body of its mother"; and live-birth is "the manifestaition of some certain sign or signs of life by the child after it is completely born." So far so good; but there are three expressions involved in these statements which are themselves in need of definition, and of these three "child" is perhaps the least definite. There are two extremes; any product of pregnancy without reference to its ante-natal age may be called a "child," or the term may be restricted to fœtuses born not earlier than the 28th week of pregnancy. If one adopt the former, one is face to face with the terminological absurdity of calling an embryo of 1 cm. long in the decidual membranes a "child," whilst if one takes the 28th week as the earliest age one is excluding fœtuses which may quite well on occasion live and grow into adult men and women. If, again, viability be chosen as the delimiting age, one is at once faced with the difficulty (to which reference has already been made) that every improvement in the construction of the couveuse and every advance in the feeding of the premature infant may alter the age of viability and make it earlier. It is necessary, however, to fix upon a date for registrational and other forensic purposes, and personally I should prefer to say twenty-four instead of twenty-eight weeks as the earliest age to which the name child is applicable, but I am ready to accept twenty-eight weeks for the sake of uniformity. In the next place "completely born" requires

definition. It is usually taken to mean complete expulsion of the child from the body of the mother, but not entire separation; in other words, it is not necessary that either the umbilical cord should be divided or the placenta expelled. A child therefore is completely born when its head, trunk, and limbs are all outside the vulva; and to this meaning I do not think exception can be taken, although it may and does introduce ambiguity and indefiniteness into the medical evidence in infanticide trials and possibly stands in the way of conviction in a few undoubtedly criminal cases. With regard to the significance of "certain sign or signs of life," there is again some confusion due to a want of appreciation of the characters of ante-natal life. The signs of life usually considered are four in number: breathing, crying, movements, and heart-beat or its resulting pulsation (in the cord, at the wrist, at the ankle, and elsewhere). Obviously the first two are purely post-natal in their time of occurrence, neglecting the few instances in which a child has cried *in utero* or tried with disastrous effects to itself to breathe therein; the other two (movements and heart-beat or vascular pulsation) are ante-natal. Breathing, therefore, is, speaking generally, the best sign of life to use as a test of live-birth, for it is the characteristic indication of the commencement of post-natal life; crying is not so good, for the child may lie breathing for some time before it cries, whereas it can hardly cry without breathing; the other two (movements of the limbs, face, etc., and heart-beat and resulting vascular pulsation) are of less use for the present purpose because they were already in existence in ante-natal life and could be detected then. As a matter of fact there is a curious paradox here; for if the pulse in the umbilical cord be regarded as the sign of live-birth (as the Obstetrical Section of the Royal Society of Medicine seems to suggest) then there is the disturbing fact that as soon as pulmonary respiration is fairly established the pulsations in the cord lessen in strength and diminish in number until they stop altogether; so that the commencement of one sign of live-birth is accompanied by the extinction of another.

Applying, now, these considerations to the defining of the term live-birth, it seems to be that there are really two varieties of live-born children—those which after complete expulsion from the body of the mother show the signs of ante-natal life alone (and consequently soon perish, these vital processes by themselves being insufficient to maintain life in the absence of the placental circulation), and those other which exhibit the signs of ante-natal life and assume in addition the evidences of post-natal life (breathing or crying, the indications of pulmonary respiration). I am interested to find that in Queensland the definition (for registration purposes) of "living person" is as follows: "A child becomes a person capable of being killed when it has completely proceeded in a living state from the

body of its mother, whether it has breathed or not, and whether it has an independent circulation or not, and whether the navel-string is severed or not." In this somewhat diffuse, periphrastic, and circumlocutory definition the Queensland officials show a certain acquaintance with the facts of ante-natal life which is both unexpected and highly encouraging.

What, next, can be said about such a term as dead-birth? I am personally of opinion that the words dead-birth and dead-born should be strictly reserved for the cases in which the child has died in ante-natal life, that is to say, anterior to the commencement of labour. The "dead-born child" I should regard as a child which after complete expulsion from the body of its mother shows that it had ceased to exhibit the signs of ante-natal life at some period prior to the commencement of labour; and, if thought necessary, I should be prepared to add, but posterior to the 27th week of ante-natal existence. Of course, the great sign of ante-natal death is to be looked upon as maceration. I do not stay here to condemn that most misleading term "putrid" as given to a dead fœtus which is macerated but in no degree putrefactive; let it be given, if thought desirable, to the dead fœtuses to which the germs of putrefaction have gained access in the uterus, and in which intrauterine putrefaction in all its loathsomeness and offensive effluvium is so nauseatingly evident. It is a rare occurrence nowadays, but it could for registrational purposes be introduced after the term macerated, thus, "macerated (and putrid)."

I feel disposed to place by themselves the children which enjoy ante-natal life up to the time of birth, but which lose their ante-natal vitality in the process of birth before they have had the chance of adding to its signs those of post-natal life. These are the children brought alive to the birth, but not born alive. I refer to the craniotomized child, soon to become, I trust, as unknown as the whalebone fillet in operative obstetrics, to the child dying by reason of pressure on the umbilical cord, to the fœtal victim of placenta prævia or accidental hæmorrhage, and, in a word, to all children whose hearts could be heard at the beginning of labour, but which show no signs of ante-natal life at the moment of birth. If necessary I should call them dead-in-birth children and the condition intra-natal death. I am willing, however, for the sake of simplicity in a subject overburdened already with complexity, to group them with the dead-births, as above described, adding to the last clause of the definition the words "during or," when the clause would read "during or at some period prior to the commencement of labour." At the same time, there are good reasons for trying to make the distinction between ante-natal and intra-natal deaths, and the absence of macerative changes in the latter makes the separation possible.

Next there are the still-births as I think they should be defined.

I am well aware that what I am now about to propose is revolutionary, but I am convinced that the proposition should be made before the drafting of a still-births' registration Bill makes it, if not for ever, at any rate for a very long time, impossible to re-open the subject. Why, for instance, should we not define the still-born child as one expelled completely from the body of its mother, exhibiting one or all the characteristic signs of ante-natal life (movements, heart-beat, pulsations, etc.), but failing to assume one or all those of post-natal existence (pulmonary respiration, crying, etc.). Of course, if by medical means or other plans of resuscitation it did assume the signs of post-natal life, it would pass into the category of the live-births. It may be suggested that two groups would be needed, one containing the still-born children happily resuscitated, and the other those in which the still-birth passed into post-natal death; but this would necessitate a time limit beyond which it would be regarded as hopeless to continue resuscitative measures, and so confusion would be introduced. The difficulty perhaps is more theoretical than real, for none of us, I suppose, continues the methods of resuscitation after the child's heart has ceased to beat.

I have used the terms resuscitate and resuscitation above, but it must be borne in mind that they are not quite correctly so used in this relationship. "Resuscitate" means to restore to life, to revive, or to renew; but in these infants, born apparently lifeless, it is not so much a restoration to life as a substitution of one form of vitality for another, a successful transformation or transference of ante-natal life into post-natal existence. Nature usually carries the one form of life over into the other with no jar or hiatus; before ante-natal life with its placental circulation has well ended, post-natal life with its pulmonary respiration has begun. But this is not constant, and the obstetrician has to step in and try to do what nature has failed to accomplish, *i.e.*, to replace ante-natal by post-natal life. For the same reason "re-animate" is hardly the right word, and, although I propose "trans-animate," it is not quite satisfactory.

The suggestion which I have made above is simply the outcome of a more careful estimate of the real nature of birth. Birth is the transition from a state of ante-natal life with its characteristic phenomena into one of post-natal life with its additional phenomena. In ordinary circumstances the transition is accomplished with wonderful smoothness considering the greatness of the change involved, and to the eyes of the obstetric watcher there is little to be observed save the commencement of rhythmical movements of the chest-wall, whilst upon his ears falls the soft sighing of the respiration or the more easily audible cry of the new-born. Yet in these few minutes changes of a very intimate and fundamental kind are going on inside the infant's body. The characteristic signs of ante-

natal life, it is true, continue, and the infant outside of the womb moves its body and limbs as he did inside, whilst his heart goes on beating and drives blood through the body; but the blood-stream is changing its distribution, and instead of having a main current passing to the placenta it has now a strong flow going to the lungs. This change necessitates rearrangements and in time is accompanied by structural alterations, closure of umbilical and hypogastric vessels and of the ductus venosus and ductus arteriosus and foramen ovale and dilatation of the pulmonary vessels and tissues. It is also accompanied by a novel phenomenon, pulmonary respiration, and the child adds to its ante-natal life this peculiar manifestation of post-natal existence. Perhaps it is less novel than one is inclined to think, for there is some evidence that even *in utero* in the last weeks of that particular life there are slight rhythmical movements of the chest walls suggestive of and preparatory to the regular rise and fall of the thoracic framework which distinguish post-natal life. The unborn child, it is just possible, is exercising himself with a sort of preliminary course of gymnastics for his great post-natal respiratory feat. Of course other changes or modifications of function follow: stomach digestion begins and intestinal processes become more active, although there is evidence that these parts are not quite inactive in fœtal life; the kidneys too either increase their typical function or make a beginning; a more steady and complete circulation of well-aerated blood flows through all the outlying parts of the body whilst the liver receives a less generous share; and there are other modifications or expansions of function in connection with the sense organs, the skin, and the brain which a closer scrutiny reveals. In a phrase the living fœtus becomes a living infant; the ante-natal life has put on the post-natal.

Thus, there is birth, the transition from one form of life to another, from ante-natal existence with its less intense but sufficient placental economy to post-natal existence with its abundant pulmonary opportunity, from pre-natal dependence upon the maternal tissues to post-natal partial or complete independence of them (according as the mother suckles or does not suckle her child); there is the death also which is ante-natal in time and macerative in result, and the death which is post-natal in time and is accompanied by all the ordinary post-mortem signs of putrefaction, and between the two there is that state of hesitancy in the assumption of the characteristic phenomena of post-natal life to which I desire that the term still-birth should be restricted. In this state of still-birth as thus defined the child is not dead ante-natally, for it retains one at least of the signs of ante-natal life (the fœtal heart beat and pulsation), although it may have lost the other (fœtal movements), and so lie "still"; neither is it alive post-natally, for it has as yet failed to assume any of the characteristic signs of the fuller life which is after

birth and it does not breathe or cry; surely it is wise not to call it a dead-birth so long as there is a legitimate hope that appropriate treatment may fan the small spark of ante-natal life into the strong flame of post-natal existence; surely it is preferable to call it what it preciseiy and exactly is, temporary stillness at birth, not the definitive stillness of death. The intra-natal deaths, the cases in which the fœtal heart is beating at the beginning of labour but has ceased before complete expulsion of the child has occurred, may, for simplicity, be grouped with the ante-natal deaths, for in the strict sense of the term they are ante-natal. There are, therefore, three classes of occurrences: the ante-natal deaths, in which the signs of ante-natal vitality have been extinguished before the complete expulsion of the child from the mother's body; second, the post-natal or infantile deaths, which take place after the child has been born alive, after it has successfully taken on the peculiar and characteristic signs of post-natal as distinguished from ante-natal vitality; third, the cases in which the ante-natal type of life is maintained for a short time after complete expulsion from the mother's body, in which the assumption of the characters of post-natal life may not take place, and in which, therefore, ante-natal life may give place to post-natal death without the interim establishment of post-natal life. The first class should be called ante-natal deaths or dead-births; the second class may be grouped with deaths in general or with infantile deaths in particular, although from the present standpoint they are post-natal deaths; and to the third class the name of still-births can appropriately and correctly be given, if for no other purpose than to indicate the presence of the hope of establishment of post-natal life which is inherent in them. Of course when the still-births are happily carried across from ante-natal into post-natal life after the temporary check in the transition which they have suffered they will be called still-births which have become living infants.

Little space is left for the discussion of the necessity for the compulsory registration of these ante-natal and intra-natal fatalities, but fortunately little space is needed for this purpose. Great Britain and Ireland, with a few of the British dominions across the seas, stand at present almost alone among the civilized nations of the world in making no registrational attempt to discover how many lives in their populations are lost before and at birth. What the majority of the nations of the world have, what India, the Cape of Good Hope, and most parts of Canada already possess, surely ought seriously to be regarded as desirable for the rest of the British Empire, including the Mother Country and the great Continent of Australia. This is one of the many strange effects which the falling birth-rate has had; so long as there was what Tennyson called a "torrent of babies" rushing in upon the land there was less need perhaps to give thought to the thousands of individual drops that were lost as spray, but now

there is an inclination to conserve the whole of the supply and to bring every life to the birth. Obviously the first step must be to discover what the loss is. Other nations have some information on this point to guide them. At least they know something of the number of lives lost between the sixth or seventh month of pregnancy and the full-term. They have, however, with one or two possible exceptions, absolutely no registrational knowledge whatever of the numbers of the ante-natal lives which are lost before the sixth month of pregnancy; abortions are taken no legislative notice of. With the exception of the information made available by the Notification of Births Act, there is in Great Britain no means of finding out the ante-natal death-rate between the 28th week of pregnancy and the full-term, and, with the exception of some returns coming in from certified midwives there is no means of gauging the number of abortions, although every doctor knows how prevalent they are.

One very small advantage may accrue to this country from its backwardness in the compulsory registration of ante-natal deaths, viz., the opportunity of improving upon existing methods and of benefiting from the mistakes other nations may have made. For instance, let there be no registrational loophole left whereby the infants who die between birth and the hour or day of declaration and inscription shall be liable to appear amongst the dead-borns; there must be no confusion here similar to that between the "mort-nés" and the "dits mort-nés" of France and Belgium.

Let us also get rid of the practice of regarding still-birth as synonymous with dead-birth; it is neither etymologically correct nor registrationally desirable. Let us call the child whose ante-natal life ceases at any time between (let us say) the 24th week of pregnancy and its complete birth from the mother's body a dead-born child, and let the birth of such an one be termed a dead-birth. Let all these be compulsorily registered. Let the interruptions of pregnancy prior to the sixth lunar month (24th week) be called abortions or miscarriages, and let notification of such be made optional for the various sanitary districts of the country. Let the still-births, as I have defined them, be entered twice, first as still-births, and second as either infantile deaths or as ordinary births according as the attempt to animate them has failed or succeeded. Let us at least recognize the existence and reality of ante-natal life to the extent of inscribing it. In this way it will become possible to know at least the proportion which the lives which are lost before and at birth bears to those which are lost immediately or soon after birth, as well as to have some idea of the chances of survival of still-born babies (as I have defined them).

I hardly think it would be wise at first to demand in the registration form the cause of death, far less than of the miscarriage; but it would be of the greatest benefit to have the sentence "cause of ante-

natal or intra-natal death, if known,," printed there. At first few medical men would be able, even if willing, to give this information; but some would give it to the best of their ability; all would become accustomed to the routine even if unproductive interrogation regarding the causes of such fatalities; and in time, with an extension of our available knowledge of ante-natal pathology, and an increase in our facilities for making post-mortem examinations upon the products of pregnancy, it would be possible to make the clause obligatory. So, too, with the miscarriages; a phrase such as " probable cause of the abortion " could be inserted into the notification forms. Let our maternity hospitals with their greater resources in diagnosis and greater knowledge of the morbid anatomy of ante-natal life lead the way in all these matters.

But, in addition to yielding some indication of the amount of life lost before and during birth such a Registration Act would be of immense service in two other directions. During the past ten or fifteen years a great reduction has been made in the infantile death-rate for the first year of life, and it is generally recognized that the improvement in the chances of survival in these early months is largely due to the removal of causes of disease (*e.g.*, diarrhœa) which come into operation after birth by bad hygiene and faulty feeding. It is also thought that the possible diminution in the infantile death-rate by the removal of these preventable causes has for some places nearly reached its limit. If, therefore, there is to be a further reduction it must be by attacking the causes of post-natal death which are in action before birth or are brought into play at birth, viz., the ante-natal or intra-natal causes of infantile mortality. At present, as Dr. Dudfield admits, very little is known of these ante-natal morbid causes which throw their malign influence forward into post-natal life; but from observations which have been made in New York [1] it has been calculated that no less than 35 per cent. of the total mortality under one year of life is due to congenital diseases, and these usually prove fatal in the first month. If this be so, or if it be even an approximation to the truth, it is easy to see that anything which increases our knowledge of these ante-natal causes will be of immediate service in helping us to overcome the congenital causes of infantile mortality. Then, again, by such a Registration Act we shall learn more of the pathology of ante-natal life itself, and so a brighter light may be thrown into the dimly obscure region known as ante-natal hygiene; thus in time will come the power of dealing with the life which is before birth in such a way as not only to prevent ante-natal deaths and miscarriages (which of course are ante-natal deaths, family deaths, we may say, without following funerals), but also to encourage the coming to the birth of

1. "New York Medical Journal," xcviii, p. 383, 1913.

strong and healthy infants. For all these reasons a Still-births' Registration Act is needed. It will perhaps throw a fresh burden upon the medical practitioner, but legislation is not without means of ameliorating the oppressiveness of such a weight, and, further, our Continental confrères have been wearing this additional professional obligation for many years.

Finally, I may say that what is really needed is not so much a Still-births' Registration Act (as I have defined still-births), but an Ante-natal Deaths' Registration Act. I venture to think that the latter term more correctly indicates what is lacking in our vital statistics and what it is the real wish of our social reformers and ante-natal hygienists.

My leading conclusions, therefore, are as follow:—

1. That, in view of the existing confusion in the terminology of still-births and allied states, an attempt to reach uniformity of definition should be made.

2. That a Still-births' or, better, an Ante-natal Deaths' Registration Act is greatly needed in this country.

3. That the definitions of dead-birth, live-birth, still-birth, and abortion should be so constructed as to be in accordance with the physiology of the time of life dealt with.

(*a*) For *dead-birth* I suggest the complete expulsion from the maternal birth-canals of a child which during or before birth has lost the characters of ante-natal life, especially heart-beat, arterial pulsation, and movement.

(*b*) For *live-birth*, the complete expulsion from the maternal birth-canals of a child which, whilst it loses pulsation in the cord, adds on to the other characters of ante-natal life the signs of post-natal vitality, viz., pulmonary respiration and crying.

(*c*) For *still-birth*, the complete expulsion from the maternal birth-canals of a child which, whilst continuing to exhibit one or more of the signs of ante-natal life (heart-beat, arterial pulsation, movement) fails for a time to assume those of post-natal life (pulmonary respiration, crying, etc.), and then either loses even the characters of ante-natal life or is successfully resuscitated (transanimated), and assumes those of post-natal existence.

(*d*) For *abortion* or miscarriage, I suggest the termination of ante-natal life before the end of the sixth lunar month by the expulsion of the uterine contents. A *premature birth* is expulsion of the uterine contents after the sixth lunar month but before the full term, and it may be a dead-birth, a live-birth, or a still-birth.

SELECT CLINICAL REPORTS.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class.)

A Case of Chorion-Epithelioma presenting some Unusual Features.

By Herbert Williamson and Charles Noon.
From the Gynæcological Department of St. Bartholomew's Hospital.

The patient was a woman aged 39, the mother of two children. After the birth of her last child, in 1907, the menstrual periods continued normal until November 1911, when they ceased. In February 1912, after three months' amenorrhœa, she was delivered of a vesicular mole. The expulsion was spontaneous and apparently complete. She remained in bed for a fortnight, and during this time there was no excessive bleeding and no rise of temperature. Towards the end of March 1912 she became ill, with a raised temperature and abdominal pain, and six weeks after the expulsion of the mole an abscess was opened and drained per vaginam. By the beginning of July 1912 she was again quite well. From this time her periods were regular and normal until April 1913, when they again ceased, and she was in doubt as to whether she had become pregnant; she, however, remained in good health until July.

In July she had a sudden attack of abdominal pain, and became ill, with loss of appetite, occasional vomiting, constipation and gradual loss of weight. The abdominal pain continued, and was so severe as to keep her awake at night. In the course of a few days she began to be troubled by a cough, and on August 2 coughed up some frothy, blood-stained mucus.

She was sent up to St. Bartholomew's from Barnstaple on August 4, and during the railway journey had a further slight hæmoptysis.

Condition on admission to Hospital. She was a spare woman, but not emaciated; the conjunctivæ were yellow and the skin jaundiced. Temperature 99°F.; pulse 108; respirations 40 to the minute; tongue furred and dry. No enlarged glands were felt in the supra-clavicular triangles, the groins or axillæ. The breathing was shallow, the movements of the left side of the chest impaired; the percussion note was dull and the breath sound weak at the left apex and over the

lower half of the right lung. The abdomen was distended below the level of the umbilicus, but moved well on respiration. A tumour could be felt rising out of the pelvis and extending for a distance of seven inches above the top of the pubes. It was centrally situated, elastic, and its outline difficult to define. It was a little tender to the touch, and its mobility was slight. It could not be made to contract; the note over it was impaired, but not absolutely dull, and a very clear souffle could be heard over its right upper border. There was no tenderness over the liver, and the area of liver dulness appeared to be natural. On vaginal examination, the cervix lay close behind the symphysis pubis, high up and difficult to reach; the canal was closed, and the cervical tissues were not softened. The posterior fornix was bulged downwards by a rounded, tender, elastic mass which occupied the greater part of the pelvic excavation. The mass was fixed, but the vaginal mucosa could be moved over it. Bimanual examination was difficult on account of tenderness, but the uterus could not be differentiated from the tumour. On rectal examination the tumour was found to encroach upon the lumen of the bowel, but the mucosa was healthy and moved freely over the mass. There was no œdema of the legs. The urine contained bile, but no albumen or other abnormal constituents. A blood examination gave a count of 3,500,000 red and 10,000 white cells.

The diagnosis offered points of difficulty. The sudden onset of amenorrhœa in a woman whose periods had previously been perfectly regular suggested pregnancy, and this view was supported by the presence of a loud souffle heard over the upper part of the tumour, but the absence of signs of activity in the breasts, the absence of contractions over the tumour and of softening of the cervix were against it, and we formed the conclusion that the patient was suffering from some form of pelvic new growth with secondary deposits in the lungs and liver. We therefore sent her to the *x*-ray department for a report on the condition of the chest, and the skiagram showed many dark areas which were interpretated to represent deposits of growth in both lungs.

The next question to be settled was the nature of the growth. The history of the expulsion of a vesicular mole raised the suspicion to chorion-epithelioma, but the fact that seventeen months had intervened and that during the greater part of this time the patient had been in good health, made this appear somewhat doubtful, and we asked Mr. Mackenzie Wallis to test the blood serum by Aberhalden's method for both pregnancy and carcinoma. With placental tissue the result was strongly positive by both the ninhydrin test and the optical method; with carcinoma tissue the result was negative. We therefore made a confident diagnosis of chorion-epithelioma.

There is but little to be added to the clinical history. She

gradually became weaker, respiration became more and more embarrassed, and she died on the twentieth day after admission.

The first specimen shows the mass of growth which occupied the pelvic cavity and lower part of the abdomen. It has been hardened in formalin for several weeks. The specimen consists of the growth together with the bladder, uterus, vagina, rectum and pelvic colon; one kidney and ureter is still attached. At the post mortem examination the ureters were bound intimately to the lateral aspects of the mass and compressed between it and the pelvic walls, but they were easily isolated by dissection, and their tissues were not infiltrated. The cæcum and appendix were fixed by adhesions to the growth, but their walls were not invaded.

The bladder seen on the anterior aspect of the specimen shows hypertrophy, but in other respects is normal. A red glass rod has been passed through the urethral canal. The lower portions of the ureters appear normal, but the portions above the spot where they were compressed between the growth and the pelvic wall are dilated and hypertrophied, as are also the pelves and calyces of the kidneys. The pelvic colon and upper part of the rectum are stretched over the growth, but are not infiltrated. The vaginal wall is smooth and not infiltrated. The uterus is bisected a little to the left of the median line; its general outline is preserved except posteriorly, where it is thickened and infiltrated by the growth. The cavity is neither dilated nor elongated, the mucosa is smooth, and neither to the naked eye nor microscopically is any growth visible. Behind the uterus is a mass measuring 7 inches in the vertical diameter and 4 inches anterio-posteriorly. Before removal from he body it filled up the pelvic excavation, and reached 4 inches over the brim. It consists of three portions—(1) an upper part of a red colour with well-defined margins; (2) a medial triangular portion of a pale-grey colour with a central red nodule; and (3) a lower portion, larger than either of the others of a red colour and having ill-defined margins; in the lower pole of this portion is a mass of blood-clot adherent to the growth.

The external surface of the growth is bossed and irregular; both round ligaments can be identified; that of the left side passes into the growth, but the left ovary and tube cannot be seen. The right round ligament can be traced on to the surface of the growth, and the right ovary and tube are seen slightly above and posterior to it. These structures are of natural size, and, although adherent to the growth, are not infiltrated.

The liver is enlarged, and scattered over its surface are a number of raised, dark-red masses of growth. The section of liver shown contains three such masses, the largest measuring two inches in diameter. They are not encapsuled, but the line of demarcation between them and the liver substance is clearly marked. Both lungs

are studded with masses of growth varying in size from a pea to a marble. These are well seen in the portion exhibited.

Sections prepared from the wall of the uterus, the lungs and the liver show that the growth consists chiefly of masses and strands of syncytium, so arranged as to form the boundaries of irregular vascular spaces; but in some sections Langhans' cells are present in large numbers. The nuclei are, for the most part, vesicular, but in some of the thinner strands elongated and almost rod-shaped. An area of apparently healthy tissue intervenes everywhere between the growth and the uterine mucosa.

Sections have also been cut from the kidney, the uterine mucosa and from the blood-clot, but none of them contain growth.

We have shown this specimen to-night mainly to illustrate the value of Abderhalden's test in the diagnosis of chorion-epithelioma. At a meeting of this Section two months ago we emphasized the importance of performing Abderhalden's test at regular intervals upon all patients who had recently been delivered of a vesicular mole, and expressed the opinion that this afforded a means of making the diagnosis of the development of chorion-epithelioma at the earliest possible moment. It was objected that clinical evidence was more reliable and that the only way of making a certain diagnosis was by dilating and exploring the uterine cavity. In this case exploration of the uterine cavity would have been of no value whatever, for, as often happens in these cases, the primary growth was not in the uterine mucosa. It is impossible to say where the growth started; it may have been in the left ovary or tube, or possibly in the depths of the uterine muscle. Had we had this patient under observation after the expulsion of the mole, and had Abderhalden's test given a persistently positive result, we should have felt it our duty to have explored the abdomen and her life might have been saved.

The case presents other features of clinical interest in the long interval of sixteen months between the expulsion of the mole and the onset of symptoms, and in the fact that menstruation was regular in time and normal in amount for a period of one year during which the growth was developing.

Ectopic Pregnancy occurring twice in the same Patient.

By Daniel Dougal, M.D.,

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This complication, although by no means rare, possesses a special interest in that it affords an opportunity for the discussion of the operative treatment of ectopic pregnancy in general. The present case is a typical example of its kind, and differs in no important feature from many already recorded, unless it be in the fact that both specimens removed have been available for examination and a fairly complete account also obtained of the patient's successive attacks and her health during the interval.

E.K., aged 28 years, was admitted to St. Mary's Hospital on August 21 1912. She had been married 5½ years, and had had one child, four years previously, the confinement having been apparently normal. Menstruation commenced at the age of 19, was of two to four days' duration, and occurred regularly every four weeks, the last period terminating on May 16. The patient missed her June period, but on July 27 commenced to have a slight loss. This became more free on the following day, and a portion of what she describes as skin was passed. Pain commenced simultaneously with the loss, but was not severe at first, being of a griping character and confined to the right lower abdomen. For the following three days the discharge was slight, but on the fourth day increased in amount, whilst the pain became suddenly more severe, drawing the patient to the floor, but relieved somewhat on her bearing down. The patient's condition again improved slightly, but three weeks later, on August 20, she was suddenly seized with excruciating pain shortly after retiring to bed, and felt as though her back were going to break. She was violently sick, but there was no feeling of faintness. This attack lasted for two hours, when the pain became somewhat easier, but as the patient still felt very ill she was sent down to Hospital early the following morning. On examination, she appeared to be rather pale and her expression anxious. Her pulse was 116, the temperature normal. There was considerable tenderness over the lower part of the abdomen, but nothing more than this could be made out. On vaginal examination, however, the uterus, slightly enlarged, was found to be pushed over to the left by a firm, tender swelling, the size of a walnut, in the right fornix and forwards by an indefinite mass, suggestive of blood-clot filling up the pouch of Douglas. A diagnosis of ectopic pregnancy with intraperitoneal hæmorrhage was

made, and the patient immediately prepared for operation, this being subsequently performed by Dr. Walls.

On opening the abdomen a large amount of free blood was found in the peritoneal cavity. The right tube was enlarged and bleeding freely from a ragged opening in its posterior wall. Filling the pouch of Douglas was a large quantity of blood-clot, some recent, some of earlier date, and lying in the midst of this was found a hard mole, the size of a duck's egg. The right tube and ovary were removed, and most of the blood-clot cleared out. The left appendage was examined, but as it appeared to be healthy was left intact. Recovery was uneventful, the patient leaving hospital on September 11, three weeks after her operation.

The specimens removed are two in number, the ruptured tube and the blood mole. The tube is enlarged near its outer end and presents on its posterior aspect a large ragged opening leading into a deep cavity from which the mole has escaped. The fimbriated end of the tube is patent, and surrounding it is an incomplete adventitious sac formed by some of the blood which has escaped during an attempt at tubal abortion. The mole is a hard oval mass measuring 3″ × 2″, and consists of a thick wall of blood-clot surrounding an irregular-shaped amniotic cavity one inch in diameter. Within the latter is suspended a small embryo three-quarters of an inch in length. In this case the pregnancy evidently advanced to the sixth week when the blood-mole was formed. The griping pain complained of during the early part of the attack was undoubtedly caused by attempts at tubal abortion, which were unsuccessful, however, with the result that four weeks later, as shown by the sudden excruciating pain, the tube ruptured and the mole was expelled into the abdominal cavity. After leaving Hospital the patient improved in her general health, and menstruated regularly every twenty-eight days until November 1913, when she again went two weeks over her period and commenced with sudden pain and slight loss of blood on November 16. The pain was rather indefinite and varied in severity from day to day until her admission to the Manchester Royal Infirmary on November 27. There was some doubt about the diagnosis at first, as the symptoms appeared to suggest an attack of appendicitis. She was therefore placed in one of the general surgical wards, and remained there until December 2, when she was examined by Dr. Fothergill and transferred by him to the gynæcological department. Whilst in hospital both the pain and hæmorrhage became less, but as vaginal examination revealed a definite swelling lying to the left of the uterus an ectopic pregnancy was diagnosed and operative measures decided on.

The second operation was performed by Dr. Fothergill on December 5, 1913. On opening the abdomen a tubal mole was found on the left side and removed together with the corresponding ovary.

The uterus was somewhat enlarged, but otherwise normal. The right appendage was absent, and some adhesions were found around the vermiform appendix. The pouch of Douglas contained a large quantity of blood-clot, and about a breakfast-cupful of this was removed before closing the abdomen. The patient made an excellent recovery, and left Hospital at the end of three weeks.

The specimen removed consists of the left tube and ovary. The tube is distended throughout the outer two-thirds of its length and measures at this part about one and a half inches in diameter. The fimbriated end is open and the process of tubal abortion is evidently taking place. On cutting into the tube there is no amniotic cavity or embryo to be found, but stained sections of the tube wall and blood-clot within it reveal the presence of large numbers of chorionic villi in various stages of degeneration. The ovary is of normal appearance and contains a corpus luteum.

The main features of the case are therefore as follow:— The patient has a full-term child eighteen months after marriage. No further pregnancy occurs for four years, a fact in itself suggestive of some inflammatory trouble. Ectopic gestation then occurs on the right side, ruptures, and is removed with both tube and ovary, the other appendage being apparently normal. All goes well for sixteen months, when the same complication occurs again, this time on the left side. Incomplete tubal abortion takes place, and this appendage is excised at a second operation. Had both appendages been removed at the original operation a second one would no doubt have been avoided, and therefore the point arises as to how far it is justifiable to remove both appendages rather than allow the patient to run this extra risk. The frequency of the condition therefore becomes of great importance and is worth considering in some detail.

In 1903 Wassmer [1] collected and carefully analyzed 132 cases.

In 1911 Rabinowitz [2] and Smith [3] both contributed excellent papers on this subject, the former dealing with 157, the latter with 170 authenticated cases respectively. According to Rabinowitz the condition has been recognized for many years, a case having been reported so long ago as the year 1595.

With regard to relative frequency, Simth mentions 2,998 cases of ectopic pregnancy in which 113 recurred, a percentage slightly less than 3·8. It must be remembered, however, that the nature of the operation and other conditions affecting subsequent pregnancy have not been taken into account in compiling these figures, and therefore the percentage is much too low, as both appendages were probably removed in a great number, and recurrence thereby rendered impossible.

In the great majority of cases recurrence takes place in some part of the opposite tube, but a few instances are on record where it occurred in the same tube.

Thus in a case reported by Pearson [4] the sequence of events was as follows:—

January 1903. Married.
November 1903. Ruptured left tubal pregnancy—loop of tube excised.
November 1905. Normal full-term pregnancy (female).
November 1907. Ruptured left tubal pregnancy again—remainder of tube excised.
— 1908. Normal full term pregnancy (male).
February 1909. Again 4 months pregnant.

It may be mentioned here that a few cases of three successive ectopics have been recorded, two of course occurring in the same tube, but their authenticity would appear to be rather doubtful.

As regards the interval between the ectopic pregnancies, this was nearly sixteen months in the present case.

In 145 cases Smith found the average to be thirty months, the shortest being five months, the longest twelve years.

As to children in the interval between the operations, out of 132 cases, seven had normal pregnancies, one an abortion and one a doubtful abortion, the percentage therefore being a little over 6. In no instance did a pregnancy occur in a patient who had never had a child previous to the first operation.

The question of a normal pregnancy following a single ectopic is also of importance.

Ehrenfest,[5] out of 19 cases, found subsequent pregnancy in three, whilst it only occurred three times in Smith's 33 cases. Here again the nature of the operation and other conditions must be taken into account, but it would appear that normal pregnancy does not follow so frequently as one would expect.

A study of these various figures necessarily brings up for consideration the correct method of dealing with an ectopic pregnancy, whether to remove one or both tubes or, as suggested by Whitehouse [6] in a recent paper, to enucleate the gestation and repair the injured tube.

With regard to the last-named method, Smith was unable to trace any case in which this had been done, and where a subsequent pregnancy, either intra- or extra-uterine, had taken place; but Lindquist repaired the opposite tube by freeing adhesions, with the result that it became pregnant; and Polak had a case in which the ectopic repeated in the stump of a tube removed for inflammatory disease. The fact, however, that it is possible for a second pregnancy to occur in the same tube would make it inadvisable to carry out this line of treatment.

As regards the removal of one or both tubes the practice in recent years has been to conserve the non-pregnant tube unless obviously diseased, but it is difficult, if not impossible, to form with the naked

eye an exact idea as to its physiological value, and therefore Smith recommends in his paper that the age of the patient, and the number of previous pregnancies, together with her own personal desires in the matter, should be taken into account before commencing the operation, and that where no future pregnancy is to be expected or desired, both appendages should be removed and the patient thus saved the risk of what is after all a fairly frequent complication.

In conclusion, I wish to express my thanks to Dr. Walls and Dr. Fothergill for kindly allowing me to publish the details of this case.

BIBLIOGRAPHY.

1. Wassmer. *Monats. für Geb. u. Gyn.*, Berlin, 1903, vol. 17.
2. Rabinowitz, M. *American Journal of Obstetrics*, 1911.
3. Smith, Richard. *American Journal of Obstetrics*, 1911.
4. Pearson. *Journal of Obst. and Gyn. of British Empire*, 1909.
5. Whitehouse, Beckwith. *Journal of Obst. and Gyn. of British Empire*, Dec. 1913.

Left Parovarian Cystoma causing Torsion of the Fallopian Tube, the Pedicle containing Fallopian Tube, Fimbria Ovarica and Mesosalpinx.

By G. Balfour Marshall, M.D., C.M., F.R.F.P.S.G.,

Senior Gynæcological Surgeon, Royal Infirmary, Glasgow; Extramural Lecturer in Obstetrics and Gynæcology, Glasgow.

Torsion of the pedicle of an ovarian cystoma must be familiar to all gynæcological surgeons, but this is the only case in which I have seen a torsion of the pedicle of a parovarian cystoma, nor do I recollect of having seen a similar case recorded.

Mrs. C., aged 38, was admitted to my ward on January 3, 1913, with the complaint of more or less continuous pain in the left lower quadrant of the abdomen during the previous four years. She had had eight children, followed by three miscarriages. There was nothing of special note in her history till the first miscarriage at the sixth month, four years ago, at which time she was confined to bed for six weeks. What this illness was she could not state. It may be surmised that the illness was due to septic infection, and the after history of more or less continuous pain in the left side would suggest this, but if so no evidences of pelvic inflammation were found at the time of operation on January 16, 1913, nor did it cause sterility as she had other two early miscarriages—one three years ago, the other $2\frac{1}{2}$ years ago.

She stated that during the past four years she had never been free from an aching pain in the left lower quadrant of the abdomen, though it varied much in intensity, being worse after exertion of any kind and easier when she rested. She further stated that a swelling occasionally appeared in her left side, and that when this was present she experienced severe pain in the region of the umbilicus. There had been no alteration in her menstrual periods, which remained regular. The only other symptom of note was frequency of micturition during the daytime from which she had suffered for the past two years.

The patient was thin, and looked older than 38, her hair being quite white, but she stated that premature greyness began when she was only 20 years of age. Deep palpation in the left iliac region elicited slight tenderness.

By vaginal examination a tense cystic tumour was palpable filling the left side of the pelvis and bulging below the level of the cervix, which was displaced to the right and anteriorly.

Bimanual examination showed the uterus normal parous size, but displaced to the right of the middle line by a tense cystic ovoid tumour which filled the left side of the pelvis. The tumour was quite immovable and fixed in the pelvis as if adherent. A hard rounded pedicle could be felt passing from the left uterine cornu to the cyst, and this was diagnosed as a thickened tube due to chronic salpingitis. Operation proved this thickening to be due entirely to torsion, although the tube was a little thicker than normal.

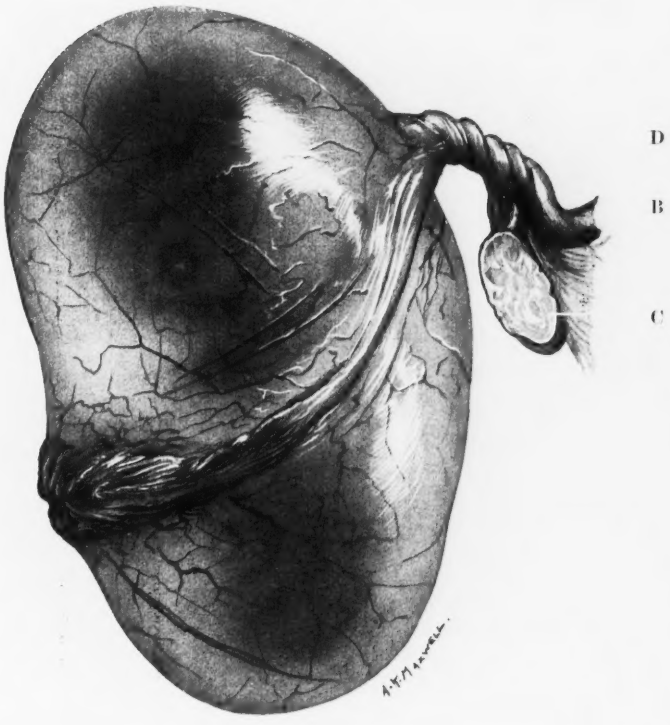
The diagnosis made was that of a left ovarian cystoma fixed by adhesions and of chronic salpingitis owing to apparent thickening of the tube and the history of persistent pain following the first miscarriage four years ago.

Laparotomy was performed on January 16, 1913. The tumour proved to be a left parovarian cystoma, the normal ovary lying between it and the uterus. The outer half of the tube and fimbria ovarica formed a band running obliquely and completely round the upper half of the tumour. The cystoma was attached to the top of the broad ligament by a pedicle which showed two complete turns forming four twists and which was composed of tube, fimbria ovarica and mesosalpinx. The direction of the torsion was as if the tumour had been held and twisted round from right to left (reverse clockwise). The portion of mesosalpinx involved was entirely superior to the ovarian vessels which ran an undisturbed course.

The cystoma was not adherent, as previously diagnosed, but was impacted by suction and could not be delivered till the pedicle was cut.

The drawing submitted is life size, and shows the actual condition. The size of the cystoma is $4\frac{3}{8}$ in. from upper to lower pole, and from $2\frac{3}{4}$ to 3 in. in the other diameters.

Parovarian cystoma with torsion of left Fallopian tube.



A. Fimbriated end of left tube with fimbria ovarica passing in front to form part of pedicle.
B. Left tube.
C. Left ovary shown on section.
D. Twisted pedicle containing tube, fimbria ovarica and mesosalpinx.

Early Tubal Gestation in a Malformed Right Tube. Uterine Fibroid. Large Cystic Ovaries.

By G. Balfour Marshall, M.D., C.M., F.R.F.P.S.G.,

Senior Gynæcological Surgeon, Royal Infirmary, Glasgow; Extramural Lecturer in Obstetrics and Gynæcology, Glasgow.

The following case presents some points of interest, as the presence of a tubal gestation was quite unsuspected when the patient was admitted to Hospital for operation on account of a fibroid tumour of the uterus. The single short attack of pain was unusual in its site. The two attacks of uterine hæmorrhage were not typical of an ectopic gestation, and were ascribed to the presence of the fibroid, though for such a fibroid as was found in this case the metrorrhagia was also not typical. Lastly, the gravid tube shows an interesting though not very rare malformation:—

Mrs. A., aged 34, married 5½ years, and sterile, was admitted to my ward on April 30, 1912. Menstruation began at the age of 16, was of the 28-day type, lasted 3 to 5 days, and was scanty. She complained of no particular symptoms at the time of admission, but gave the following history: In the beginning of March 1912 she had an attack of severe continuous deep-seated pain referred to the region of the nates, so severe that it confined her to bed and caused her to send for medical assistance. Hot fomentations were applied, and to the virtue of these the patient ascribed the almost complete disappearance of the pain by the evening of the same day. The patient volunteered the statement that the pain was due to a strain from carrying coals two days previously. Two days following this attack of pain, uterine hæmorrhage began, and, although a few days before the expected date of menstruation in March, she considered the bleeding as being a normal menstrual period as it lasted 5 days. However, a week later bleeding again occurred, and was so copious that she sent for medical assistance. Medicine was prescribed to check the excessive bleeding, but it lasted 10 days. After several days bleeding again occurred between April 24 and 28, but this was evidently a normal period as it came at the expected date, lasted the usual time and was not excessive.

The patient was examined on May 1, and the following points noted: Vagina nulliparous; no vaginal discharge. The cervix is in the normal position. Lying immediately above the anterior fornix, a hard, rounded body is felt forming an acute angle with the cervix. Bimanually this hard body feels the size and shape of a somewhat

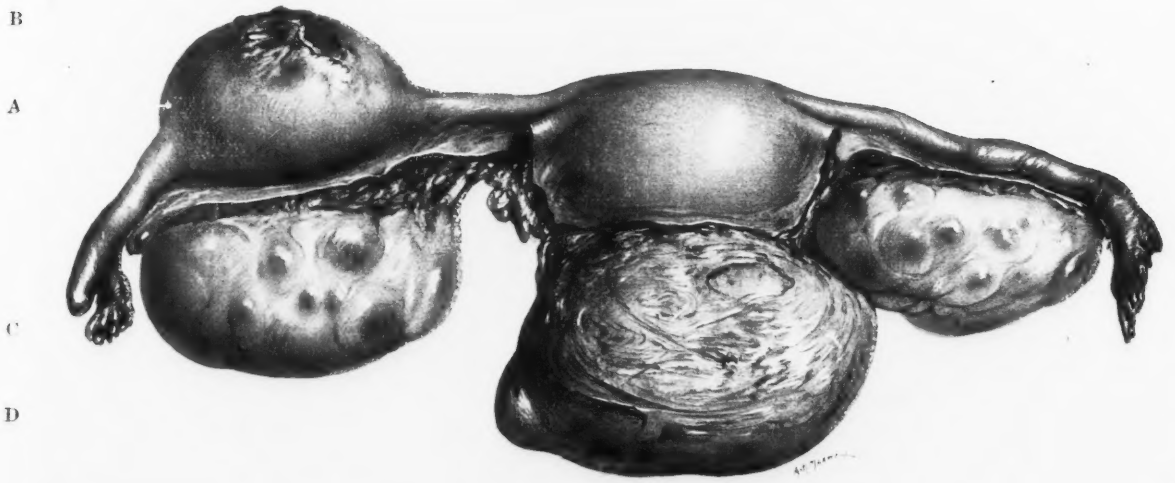
enlarged corpus uteri, but it has a fibroid-like consistency; while above and behind is felt the softer uterus. This was diagnosed as a fibroid of the anterior wall of the uterus growing from the region of the isthmus or upper part of the cervix, and confirmed by the passage of the sound. Both ovaries are markedly enlarged and cystic, the right much more so than the left. The tubal mole was not diagnosed, and from its position must have been considered part of the right ovary, which was noted to be much larger than the left. Owing to the position of the fibroid operation was advised with the intention that if possible a myomectomy would be performed and the uterus saved.

On May 8 the abdomen was opened. The bladder was drawn up over the tumour and had to be separated. After exposing the tumour in front it was found to involve so much of the cervix and lower part of the corpus uteri that it was impossible to save the uterus. Both ovaries were completely cystic, and the right was fixed by adhesions to the back of the broad ligament, but easily separated. The gestation sac was on the point of rupturing on its upper surface at a necrotic area which is well seen in the illustration. The uterus and appendages were removed by subtotal hysterectomy, only the portio vaginalis being left behind.

The illustration, which is drawn life size, shows the various conditions clearly, namely, fibroid, cystic ovaries, gestation sac and malformed tube. The peritoneal reflection of the utero-vesical pouch will be noted showing that the fibroid was mainly cervical in organ.

The fact of the tubal mole being due to pregnancy was confirmed by microscopic examination.

Right tubal gestation in maldeveloped tube. Fibroid of cervix uteri.



A. Tubal gestation sac containing tubal mole.
B. Necrotic area on point of rupturing.
C. Fimbriated end of maldeveloped right tube.
D. Cervical fibroid tumour.

REVIEWS OF CURRENT LITERATURE.

UNDER CHARGE OF EARDLEY HOLLAND, M.D.

American Journal of Obstetrics.

December, 1913.

1. Cæsarean section, a study of a consecutive series of cases. A. B. DAVIS.
2. *Thyroid-tissue tumours of the ovary. G. W. OUTERBRIDGE.
3. A contribution to the histogenesis of sarcomatous change in uterine fibroids. S. H. GEIST.
4. The treatment of sterility by the Dudley-Reynolds's operation. F. C. HOLDEN.
5. Notes on adventitious tissues of the abdominal cavity. R. T. MORRIS.
6. Diagnostic and therapeutic value of the renal catheter. K. J. SANES.
7. Renal and ureteral calculi. H. D. FURNISS.
8. *Exophthalmic goitre and pregnancy. G. GELLHORN.
9. *Treatment of placenta prævia by Cæsarean section. When, if ever, is it justifiable? ROSS MCPHERSON.
10. Advantages of Cæsarean section over other procedures in borderline cases. J. W. POUCHER.
11. Significance of hæmaturia and its management. J. G. SHERRILL.
12. Acute unilateral hæmatogenous nephritis. C. S. FOSTER.

Thyroid-tissue tumours of the ovary. This paper is an account of two cases, with a critical review of the whole subject from the ætiological and clinical standpoints. The two cases are good examples of the types of tumour found, the one being an obviously teratomatous growth with a small area of thyroid tissue therein, while the other is an excellent example of a neoplasm made up almost entirely of such tissue. The cases are described and illustrations given of the macroscopic and miscroscopic appearances.

The commonly accepted theory of their teratomatous origin is discussed, but the difficulty of attributing a tumour almost entirely composed of thyroid tissue to this mode of origin is mentioned. The author, however, considers that the number of intermediate stages between the two and types which have been recorded, make the acceptance of the reduced teratoma theory comparatively easy.

He also describes some interesting staining tests undertaken in order to demonstrate the identity of the iodine contained in the tumours with that in the thyroid gland.

In considering their clinical significance the author regards them as generally benign, the few which are malignant showing in most instances areas of unmistakeable irregularity in the cellular structure, or give other histological evidence of having assumed a destructive type of growth. There seems no reason to suppose that a dermoid tumour containing thyroid tissue is more malignant than one without this tissue.

The thyroid tissue in these tumours is of no functional significance in the vast majority of cases, and these growths give rise to no special symptoms.

The best suggested term for them is teratoma thyroidal ovarii.

An analysis of nearly fifty recorded cases is appended to the paper.

Exophthalmic goitre and pregnancy. This paper is based upon three cases occurring in the writer's practice, reviews the existing cases published and contains certain tentative conclusions which are:—

1. The complications of pregnancy and exophthalmic goitre, while comparatively slight in some cases, may constitute a grave danger to the life of the mother.
2. If the manifestations of the disease are aggravated in spite of treatment, interruption of pregnancy is indicated without delay.
3. The quickest and therefore best method of interruption is by vaginal Cæsarean section.
4. Spinal anæsthesia is preferable to any other form of anæsthesia.
5. Girls with well developed hyperthyroidism should be advised against marrying.
6. If the disease appears after marriage conception should be prevented.
7. If Vaginal Cæsarean section be performed, sterilization should be added.

Treatment of placenta prævia by Cæsarean section. When, if ever, is it justifiable? The author in this article mentions the change which has taken place in obstetric opinion during the past 15 years on this subject. He recounts a series of nineteen cases at the New York Lying-in Hospital with a maternal mortality of 5·3 per cent., and a fœtal mortality of 26 per cent. The reasons for the deaths are given in all cases and the indications for the operation are given as follows: "When we encounter a primipara with a placenta prævia, either marginal or central, or a multipara with a central placenta prævia, in either case where the cervix is rigid or undilated; provided the child is viable, Cæsarean section offers a better chance of saving the lives of mother and child."

January, 1914.

1. *Pharmacologic action of ecbolic drugs. C. C. Lieb.
2. Remarks on uterine fibroids with special reference to their relation to tumours of the thyroid gland. C. C. Barrows.
3. An analytical study of two hundred cases of pelvic inflammatory disease H. H. Cummings.
4. A contribution to the serology of pregnancy and cancer. H. Schwarz.
5. Acute intestinal obstruction caused by a freak abnormally misplaced appendix. J. A. Lyons.
6. Operative treatment of mammary carcinoma. C. E. Roth.
7. Puerperal infection due to gas-forming bacteria. E. Marvel.
8. Omentocolopexy. H. W. Longyear.
9. The training of the auxiliary expulsory muscles of labour. G. Baughmann.
10. Lumbar and sacral backache in women.
11. Treatment of uterine retrodisplacements in pregnant women. T. E. Niell.

Pharmacologic action of ecbolic drugs. In this paper the various more important papers upon this subject are reviewed, the action of some of the oxytocics on the circulation and the isolated uterus is discussed, and their therapeutic employment is indicated.

A description of the experiments and the apparatus employed is first given. The uteri used were those of guinea-pigs quickly removed to

Ringer's solution after excision from the decapitated animal. His conclusions are :—

1. As regards ergot the author attributes the pharmacological action to the three principles, ergotoxine, parahydroxyphenylethylamine, and beta-amidoazolyethylamine, the two former acting chiefly upon the blood pressure, while the latter is responsible for the striking action on the uterus. He considers that the variability of the preparations makes its employment for the strengthening of labour pains dangerous.

2. Pituitary extract is the most reliable ecbolic, but its promiscuous employment during labour cannot be too strongly condemned.

3. Quinine has a stimulating action on the isolated uterus and may be used to induce, or strengthen, labour pains.

4. The improvement that follows the use of the iso-guinolines in menorrhagia and metrorrhagia is due to a direct action on the uterus and not to changes in the circulation or coagulation time.

5. Fluid extract of viburnum stimulates the isolated uterus. Its action in dysmenorrhœa is therefore not due to an effect on the uterus, but to a depression of the central nervous system.

The paper is illustrated by many diagrams of blood pressure curves and contraction curves obtained from isolated uterine muscle.

February, 1914.

1. The Röntgen rays, radium, and mesothorium in the treatment of uterine fibroids and malignant tumours. Prof. KRÖNIG.
2. Observations and considerations on the umbilical structures of the new-born. A. W. MEYER.
3. *Pituitary extract in obstetrics. H. E. LINDEMAN.
4. Diagnosis and treatment of puerperal insanity. R. R. HUGGINS.
5. Surgical shock as a factor in obstetrical operations. A. L. MCDONALD.
6. The ideal obstetric out-patient clinic. F. S. NEWELL.
7. Clinical aspects of ruptured tubal pregnancy. R. Y. SULLIVAN.
8. *Diphtheritic vaginitis. A. L. GOODMAN.
9. The later operative technique in the treatment of cancer with special reference to cancer of the breast and uterus. M. I. ROSENTHAL.
10. *The relationship existing between the mechanism and management of the third stage of labour. J. R. FREELAND.
11. The problem of major pelvic herniæ in the female. F. D. GRAY.
12. Anatomy of the female pelvis and its bearing on procidentia. D. HADDEN.
13. Blocking the sympathetic to prevent shock in operations for cancer of the rectum, etc. J. M. LYNCH.
14. Pubiotomy versus Cæsarean section in neglected cases. A. J. RONGY.
15. Uterine hæmorrhage associated with hypertrophy and sclerosis of the uterine vessels. L. WATSON SMITH.

Pituitary extract in obstetrics. In this article the author gives his experience of the use of pituitary extract in various types of cases. He believes that by its use many forceps operations can be entirely avoided, that inertia uteri can almost be excluded as an indication for forceps, and that in many cases a "high forceps operation" can be converted into at least a "medium" and not infrequently a "low" operation.

Several cases are detailed, some in which the drug was used to initiate labour, and others where a prolonged second stage was the indication for

its administration. Most benefit appeared to follow in the second class of case.

In discussing dangers and contraindications to the use of the drug the author mentions :—

1. Danger of severe tears in friable, rigid, or diseased cervices, or when a too large dose is given when the dilatation has not proceeded far.
2. Danger of rupture of the uterus in cases of
   (*a*) Weakened musculature from fibroids or scars of previous operations.
   (*b*) Disproportion between passages and passenger.
   (*c*) Transverse presentations.
3. Danger of raising an already high blood pressure in cases of nephritis or eclampsia.
4. Danger of the possible formation of a contraction ring.
5. Danger of asphyxia in the child.

Dr. Lindeman recommends an initial dose of not more than 0·1 gm. (1 cc. Parke Davis) when the patient is in advanced labour, and would only give half this dose where the cervix is not dilated to four fingers. He also uses the smaller dose where the membranes are ruptured.

He concludes from his experience that pituitary extract is of undoubted value in cases of simple inertia or fatigue of uterine muscle; that it is occasionally useful for inducing labour; and that the dangers attending its use are few and easily guarded against.

Diphtheritic vaginitis. This is a report of a case of this rare condition which occurred in a patient suffering from pneumonia and empyema. She developed, in common with several other patients in the same ward, a sore throat from which a pure culture of the Klebs-Löffler bacillus was obtained, and a few days later an offensive vaginal discharge was reported. The vagina was found to be covered with a grayish membrane, which twelve days later was discharged *in toto*. The patient died of pulmonary œdema after five weeks' illness and no autopsy was allowed. A description of the membrane is not given, but there is a resumé of the various published cases of the condition.

The relationship existing between the mechanism and management of the third stage of labour. This is a report upon cases occurring at the Rotunda Hospital, Dublin. The practice obtaining at the hospital in regard to the management of the third stage of labour is first detailed and the results of the author's observations thereon follow. He finds that the Schultze mechanism is the more common, 82·5 per cent. to 17·5 per cent., and considers it the normal mechanism in uncomplicated cases. The escape of the retroplacental hæmatoma, in cases of ante-partum hæmorrhage and also in cases where undue "massage" of the uterus has taken place, favours the occurrence of the mechanism described by Matthews Duncan.

Another point to which the author draws attention is the frequent occurrence of retention of membrane, when the placenta has been separated by the Matthews Duncan mechanism. He found the membranes incomplete in 15·4 per cent. of cases, as against 5 per cent. where the mechanism was as Schultze describes.

Other observations showed that expression by Crede's method before the placenta had left the uterus could produce a change in the presentation of the placenta, a primary Schultze's mechanism being changed to a Matthews Duncan membrane secondarily. This was observed in seven cases.

J. B. Banister.

Annales de Gynécologie et d'Obstétrique.

December, 1913.

1. *Treatment of peritonitis by lavage of the peritoneum with ether. PHÉLIP and TARTOIS.
2. Hepatic amylogenesis, albuminuria and urobilinuria in cases of spinal anæsthesia by Jonnesco's method. S. DELLE CHIAIE.
3. *Pituitary extract in obstetrics. TURENNE.
4. Value of formalin and formal vapour in gynæcological therapeutics. MASSON and MARCHAL.

Treatment of peritonitis by lavage of the peritoneum with ether. Phélip and Tartois record the results of treatment of 16 cases of suppurating appendicitis in children by ether lavage. The cases consist of: 1, subacute appendicitis with residual abscess, 3, acute with localized peritonitis, 7 acute with perforated appendices and general peritonitis, 5 cases of general peritonitis without perforation of appendix.

The method of treatment was almost identical in all cases, namely, to open the abdomen, remove the appendix, pour in ether and drain for two or three days. The amount of ether used varied from 20 cc. in one case to 200 cc. in another. The result of this treatment was seven deaths and nine recoveries. Of the fatal cases two died of intestinal obstruction several days after the operation, two died of pneumonia, one of these being post-operative; one died of intestinal hæmorrhage, one was brought in moribund. Among the cases which recovered there were three cases of fæcal fistula, one occurring in a case of acute intestinal obstruction.

The authors raise the question whether the ether can be held responsible for either the intestinal obstruction or the pneumonia, but consider it extremely unlikely. They point out that death due primarily to the peritonitis occurred in only two cases. This, together with a comparison of a series of 16 other cases, having a mortality of 10, inclines the authors to take a favourable view of this treatment.

Pituitary extract in obstetrics A. Turenne gives an interesting account of some cases treated with pituitary extract. He considers that once the cervix is taken up the use of pituitary is invariably successful, but in cases where no contractions have taken place, it has little or no effect. He lays stress on one or two points. (1) The dose must be a large one, and if necessary it must be repeated at the end of two hours. (2) The cervix must be dilated or at least taken up. (3) The extract must not be kept too long before use. (4) Care must be taken that there is no obstruction. He discusses a number of complications that have been attributed to the use of pituitary extract. The first of these is post partum hæmorrhage following the use of the extract in cases of uterine inertia. He considers this is a possible complication, but says that all the cases quoted are really cases of mismanagement of the labour. (2) Tonic uterine contraction, he considers never happens without obstruction. (3) Partial asphyxia of the infant due to the action of this drug is, according to Turenne, a danger, especially when labour has been prolonged.

Lastly he discusses the use of pituitary in cases of Cæsarean section, and considers that preparations of ergot are infinitely safer, because the operation is often performed before the patient has gone into labour.

M. DONALDSON.

January, 1914.

1. *Pernicious anæmia in prenancy. SAUVAGE ET VINCENT.
2. A case of gangrene of cervix from the injection of a caustic. A. HERRGOTT.
3. Cholecystitis in pregnancy. AUDEBERT.

(1) Pernicious anæmia in pregnancy. Sauvage et Vincent publish an interesting case of pregnancy complicated by anæmia of a pernicious type. Patient was a multiparous woman who had had two children. She was admitted to hospital during the fifth month of pregnancy for hæmorrhage. Three days later she developed hepatic pain and an oscillating temperature. A week later she became markedly jaundiced with bile in fæces and urine. Jaundice ceased at the end of a week, and patient had the appearance of a case of pernicious anæmia, with a blood count of 800,000 red corpuscles. Patient was treated with sodium cacodylate and restricted diet with marked improvement. Patient discharged herself about ten weeks after admission, but returned a month later with hæmorrhage which ended in labour and the birth of a macerated fœtus. After this an immediate improvement set in, the blood count rising in six days to 3,000,000.

In discussing the pathology of such a condition, the authors suggest that it is due to an autohæmolytic property of the patient's serum. This theory is based on the following observations: (1) Patient's corpuscles had normal fragility as tested by saline; (2) Patient's corpuscles were hæmolysed by adding patient's serum; (3) Patient's serum had no action on corpuscles from another patient. Lastly they suggest that the fact of the patient being syphilitic might explain the autohæmolytic power of the serum. MALCOLM DONALDSON.

Revue de Gynécologie.

January, 1914.

1. *The genito-adrenal syndrome and its diagnosis. ALFRED GALLAIS.
2. A new case of tuberculosis of the cervix. XAVIER BENDER.

The genito-adrenal syndrome and its diagnosis. Gallais devotes 28 pages to the consideration of this subject. The first portion is devoted to anatomical considerations, and the lesions affecting the suprarenal body are first considered. These are:—

(*a*) *Hypertrophy*. This may affect one or both adrenals or an accessory adrenal. In the latter case, as medullary substance is not present, the whole overgrowth takes place in cortical tissue.

(*b*) *Adenomatous hyperplasia*. This is a half-way stage towards the formation of a true adenoma. The glands are clustered together especially in the neighbourhood of the reticulated layer. The whole gland is usually greatly enlarged. This enlargement may be irregular if the hyperplasia forms a localised encapsuled mass.

(*c*) *Simple adenomata*. These form yellowish friable encapsuled tumours which may be found in the gland itself or in the kidney or ovary.

(*d*) *Malignant adenomata*. Histologically these closely resemble the simple ones and are difficult to differentiate in the absence of metastases.

(*e*) *Malignant hypernephromata*. These form large tumours which commonly have metastases in the liver, lungs and abdominal glands. The author gives details of the types of cells which are usually present.

He next considers the genital lesions which may be present. Congenital

lack of development of the vagina, uterus and tubes is occasionally found, but the ovary is the organ chiefly affected. The ovaries are small, firm and fibrous. Frequently a large number of small cysts containing clear fluid are found on the surface. Graafian follicles and lutein bodies are rare. In one case in which serial sections were cut they were entirely absent.

Clinical Diagnosis. The cases are divided into :—

Adrenal pseudo-hermaphroditism. In certain cases which had been considered as examples of hermaphroditism the "testis" has proved to be in reality an accessory adrenal. When the development of the adrenal body and the internal genitalia is considered it is not surprising that anomalies of both should co-exist. In some cases the external genitalia tend to resemble those of the male, and male secondary sexual characters may be present. He states that in general, pseudo-hermaphroditism is the indication of the presence of a simple overgrowth of the adrenal cortex.

Adrenal virility. Here no congenital anatomical abnormality is present, but the female characteristics are lost and male ones take their place, for example, amenorrhœa and overgrowth of fat and muscles may occur. Overgrowth of the hair of the face and nervous symptoms are also present. Later a second phase comes on with wasting, weakness and the appearance of an abdominal tumour.

The Catamenial type. Amenorrhœa or menorrhagia may form the most prominent symptoms, but on examination other signs such as the growth of a beard are found to be present.

The Obstetrical type. He gives this a special place, only because the symptoms may first be noticed during pregnancy.

Differential Diagnosis. The author admits that the syndrome is not always present with adrenal tumours—the other symptoms which are usual with adrenal tumours are pain, digestive troubles, especially fatty stools and diarrhœa, rapid wasting, weakness and pigmentation.

In the case of a child with hypospadias, undescended testes or other malformations of the genitals, a careful examination of the abdomen should be made for the existence of a tumour of the suprarenal. He then goes on to discuss cases of gigantism, pituitary lesions, thymic hypertrophy, myxœdema and trophœdemas, and various nervous diseases ranging from meningitis to neurasthenia. The last portion of the article is on treatment, which is surgical. The adrenal tumour may be removed from the loin or by laparotomy, the latter has the lower mortality according to statistics. If any attempt is made to treat such a case by organotherapy he advises the use of the ovarian gland, and gives some reasons for so doing. The article is illustrated by one very fine coloured plate showing an adenoma of the gland. He mentions many authorities but gives no references except to his own articles. The whole article could have been somewhat compressed without diminishing its value. CLIFFORD WHITE.

REPORTS OF SOCIETIES.

ROYAL SOCIETY OF MEDICINE.

Section of Obstetrics and Gynæcology.

Meeting held Thursday, February 5th, 1914.

Dr. W. S. A. Griffith in the Chair.

Dr. Herbert Spencer showed a specimen of fibroma of the hymen, of the size of a pigeon's egg, removed from a married woman, æt. 28, a *virgo intacta*. The tumour was a very cellular fibroma, and was ulcerated on the surface. It grew from the right half of the hymen, which formed its pedicle. Dr. Spencer knew of no record of such a case. The patient remained well after $3\frac{3}{4}$ years

Remarks by Dr. Stevens and Mr. Clifford White.

Dr. Herbert Spencer showed a degenerated myomatous uterus resembling the pregnant organ, weighing $7\frac{3}{4}$ lbs., removed by total abdominal hysterectomy from a virgin, æt. 43. It closely resembled a pregnant uterus, which it was thought to be by experienced gynæcologists present at the operation. A section showing four myomata embedded in jelly, the result of degeneration, further increased the similarity. Dr. Spencer pointed out the value of bulging of the lower segment (which he believed never occurred in ordinary pregnancy), and of the absence of ballottement. True ballottement he had never met with in any tumour except the pregnant uterus, but if the jelly in this case had become liquefied it is possible that ballottement might have been obtained.

Remarks by the President, Dr. Eardley Holland, Dr. Williamson, Dr. Amand Routh, Dr. Blacker, Dr. Maxwell, and Professor Briggs.

Dr. Spencer replied.

Dr. Stevens read a short communication on

Three Cases of Cæsarean Section.

Case 1.—Cæsarean section; labour obstructed by one-half of a uterus diadelphys. Patient, æt. 20, was admitted to Queen Charlotte's Hospital on account of obstructed labour due to a pelvic tumour. This was her second pregnancy, the first having terminated normally. On examination, the head was found high up and the os three-quarters dilated. There was much œdema of the cervix. A soft tumour was felt behind the cervix bulging the posterior vaginal wall forwards below the head. It was thought to be an ovarian dermoid. It could not be pushed up. Cæsarean section was performed, and difficulty was experienced in releasing the fœtal head from the pelvic cavity. After closing the uterine incision in the ordinary way, the tumour behind the uterus was investigated, and found to be one-half of a double uterus with its Fallopian tube and round ligament complete. It was freely movable from the pregnant half. As the patient had already gone through one normal delivery it was decided to leave the double uterus alone. A complete decidual cast of the unimpregnated half of the uterus was passed on the third day. The patient did well.

Case 2.—Eclampsia; vaginal Cæsarean section. This case occurred in a primigravida, æt. 27, in the 24th week of pregnancy. A great many fits had occurred during the day before admission to Queen Charlotte's Hos-

pital, and during the following night. On admission the patient was quite unconscious. The urine was very scanty and loaded with albumen. The fundus uteri reached the level of the umbilicus. There were no uterine contractions, and per vaginam the cervix was long and rigid. Owing to her very serious condition rapid delivery seemed to be indicated, and vaginal Cæsarean section was performed (vaginal hysterotomy). The operation presented no difficulties, the cervix being closed by interrupted catgut sutures. The fœtus and placenta were delivered through the incision without any great trouble. The coma gradually lessened after the operation, and the patient could be roused on the day following to drink fluids. On the third morning after she was conscious and made a very good recovery. When examined on the 14th day the vaginal incision and the cervix had healed completely.

Case 3.—Uterine fibroids, one impacted in the pelvis obstructing delivery; Cæsarean hysterectomy. The case occurred in a patient, æt. 33, married five years; no previous pregnancy. She was first seen in March, 1913, and found to have a fibroid the size of an orange low down on the posterior surface of the uterus, and others at the fundus. The cervical fibroid could not be pushed above the brim. Pregnancy had practically been prevented during the five years of her married life. As she seemed anxious to have a child, it was suggested that a normal sexual life should be led, and she became pregnant soon after April 1st, 1913. In June the uterus was definitely enlarged, and although the cervical fibroid remained fixed it was decided to let the patient go to term and undergo Cæsarean section. This was done at the Mildmay Memorial Hospital on January 8th, 1914, the uterus being eventrated to see if myomectomy was possible. It was then found that the uterus was very distorted and that the supposed cervical tumour was really in the lower part of the uterine body, the whole expansion of pregnancy having occurred at the expense of the anterior uterine wall, the posterior being occupied by the large fibroid. There were other fibroids also. Multiple myomectomy, together with Cæsarean section, seemed out of the question, as it involved many incisions and much mutilation. Supra-vaginal Cæsarean hysterectomy was therefore performed. The case did well, except for troublesome distension and vomiting of large amounts of fluid, accompanied with collapse, which occurred on the eighth and twelfth days, due to dilatation of the stomach.

Remarks by President, Prof. Briggs, Dr. Herbert Spencer, and Dr. Barris.

Dr. Stevens replied.

Mr. Gordon Ley showed a specimen of congenital sacro-coccygeal tumour. Specimen had been removed by Mr. Preston Maxwell at the Hospital at Yung Chung, China, from the left buttock of a girl, æt. 16. It had existed since birth,and for thirteen years sinuses, discharging sebaceous material, had existed in the gluteal cleft. The specimen consisted of a cyst, lined by skin, into which projected a well-formed hand with three fingers. The skin was covered by hair. In the wall of the cyst were bones, two of which resembled ribs. Accompanying the cyst was a piece of bowel opening on a skin-covered surface. In microscopical sections this resembled the recto-cutaneous junction. Mr. Ley demonstrated that the tumour was a teratoma; he stated that such a tumour might arise (1) from a primary germinal blastomere, (2) from a totipotential cell derived from post-primary blastomere. He pointed out that the inclusion of a twin save along the great longitudinal fissure was impossible, owing to the

attachment of the amnion of the parent fœtus. Inasmuch, therefore, that the tumour in the case lay behind the rectum, it could not be an included twin. He suggested that the tumour probably arose from an aberrant totipotential cell or from a totipotential cell at the posterior growing point. He was of opinion that the comparative frequency of sacro-coccygeal tumours made the latter hypothesis the more probable.

Uncontrollable Uterine Hæmorrhage.

Drs. H. Briggs and R. A. Hendry (Liverpool) gave a report on 104 bleeding uteri after hysterectomy.

The collection of uteri from the Gynæcological Laboratory of the University of Liverpool between April 1901, and July 1913, was arranged in three divisions—(1) ten, aged 28 to 35; (2) eighty-one, aged 36 to 45, (delayed climacteric); (3) thirteen, aged 50 to 72 (post-climacteric hæmorrhage).

Tables were produced—(1) of the position, weights, and measurements of the uterus; (2) of the hæmorrhage, its age incidence, its mode of onset, its puerperal relation, its duration, and its relation to the thickness of the endometrium; (3) of parity; and (4) of complications.

The familiar effects of uterine hæmorrhage vary vastly from a grave secondary anæmia to an almost inappreciable invalidism or inconvenience; the corresponding resourceful management recognises a small percentage of uncontrollable uterine hæmorrhage; clinically important and pathologically attractive to the investigator.

A typical bleeding uterus was then described and shown to illustrate uncontrollable uterine hæmorrhage in the absence of an exercisable veto against " the uncontrollable "—a veto founded on the rarity of ultimate failure.

Protraction of diagnosis and treatment forcibly promoted hysterectomy.

Curettage was reviewed in its efficacy and failure in both exploration and treatment.

In non-malignant cases the limiting line against repeated curettage must somehow be drawn.

The total 40 local complications from the same or a dissimilar cause, distributed amongst 33 cases, left 71 uncomplicated cases in which the bleeding uterus reigned uninfluenced by collateral local disease.

Dr. Hendry, as Ethel Boyce Fellow in Gynæcological Pathology during the past three years, had examined the 104 uteri—3 were sacrificed to mincing in unsuccessful searches for hæmolytic lipoids; 101 were submitted to a histological inquiry in reference to (*a*) the musculature, (*b*) the fibrous tissue, (*c*) the elastic tissue, (*d*) the blood vessels, (*e*) the evidences of infection.

Under these headings the pathological report was presented in detail—eighteen post-mortem uteri were examined as controls. Sparse nucleation of the muscular bundles, consistent with hypertrophy or with subinvolution, fallible as evidence of muscular degeneration, was constant in the bleeding uteri before the climacteric. Variations in the fibrous and in the elastic tissues were identical in the bleeding uteri and the controls. With the solitary exception of calcification of the media in the uterus of a 17-para, the vascular changes were also identical in the bleeding uteri and the controls. Of the bleeding uteri four showed an acute infection; and from twelve a chronic infection, either primary or secondary, could not be excluded. No abnormal histological changes could be found in the endo-

metrium and no relation could be traced between varieties of endometrium and the duration or severity of the bleeding.

From the present available clinical and pathological evidence embodied in the report, the thesis is deducible that uncontrollable uterine hæmorrhage is a functional disturbance.

The disturbers, local and general, are numerous and varied. Amongst them, arteriosclerosis, fibrosis uteri, chronic metritis, and chronic infective endometritis have been appraised too highly and too widely within the fields of gynæcological pathology and treatment.

Remarks were made by The PRESIDENT, Dr. WILLIAMSON, Dr. WILLETT, Dr. HENDRY, Dr. HANDFIELD JONES.

Professor BRIGGS replied.

REVIEWS OF RECENT BOOKS.

"The Principles and Practice of Gynæcology." By E. C. DUDLEY, Professor of Gynæcology, North Western University Medical School, Chicago. Henry Kimpton. pp. 795. Price 25/- net.

THAT a sixth edition of this well-known text-book should be forthcoming is evidence of the favourable esteem in which the work is held. The opportunity has been taken to make a thorough-going revision. Many chapters have been re-written and, by rigid re-arrangement and condensation, space has been found for much new matter.

In its surgical aspects, both letterpress and pictorial, the highest commendation can be given. The illustrations and descriptions of operative procedures are all that could be desired, and, as an exposition of American methods, no better treatise has been compiled. In its pathological aspects the book is much less satisfactory. The illustrations—from drawings—might with advantage have been replaced by photomicrographs—particularly that one purporting to represent a uterine fibromyoma. The descriptions, too, of such conditions as endometritis, metritis, deciduoma malignum and degenerating fibroids, to mention only a few, are not all that could be desired.

The arrangement of subjects in pathological and ætiological sequence is undoubtedly of great assistance to the student and well in keeping with modern habit. Italics are largely used for purposes of emphasis and this, in our opinion, is better than the rather irritating spaced type of several recent American works.

We are inclined to think that rather too much space has been devoted to major surgical technique; much of this has no special relation to gynæcological surgery and is best studied in books devoted solely to technique. In this connection we must take strong exception to the statement that post-operative shock may be suitably treated by 1/30 grain doses of strychnine every four hours!

The questions of hystero-salpingo-oöphorectomy and of vaginal versus abdominal treatment of pelvic inflammations are very fully discussed. As regards the former, the view is expressed that hysterectomy is indicated only in exceptional cases and that, in these, the half-way measure of subtotal removal should be avoided in order to prevent "stump exudate."

In ovariotomy it is rather surprising to find that tapping of the cyst through a small incision is advocated.

The sections on embryology, malformations and malpositions are clear, well illustrated and praiseworthy.

One or two evidences of faulty proof-reading were noted both in the index and the letterpress. H. LEITH MURRAY.

"Gonorrhœa in Women." By C. C. NORRIS, M.D. W. B. Saunders Co. pp. 521. 25/-

AN excellent book, well written and exhaustive as regards its subject. It deals with the history, pathology, symptomatology and treatment of gonorrhœa in women and gives a full account of the methods adopted in different countries to guard against its spread both amongst the public and in the services. Especially noteworthy is the chapter on conservative surgical treatment of the uterus and appendages in cases of chronic inflammation which do not react to palliative treatment. The method of puckering the mesosalpinx by including the whole of the upper cut edge in one ligature interferes with the blood supply and causes secondary changes in the ovary. To avoid this he advises, in performing salpingectomy, the mesosalpinx be cut immediately under the tube and that the bleeding points be tied separately. The utero-ovarian anastomosis is thus not affected. A full list of references to the literature is given throughout.

G. G. ALDERSON.

"Atlas der Operationsanatomie und Operationspathologie der weiblichen Sexualorgane." By Dr. WILHELM LIEPMANN. August Hirschwald, Berlin, 1912. 24 Marks.

THE title of the Atlas is hardly justified by its contents. There are a number of elaborate anatomical plates, drawn with great accuracy and a wealth of detail, but from the gynæcologist's point of view they provide little of value that is not to be found in general anatomical atlases such as Spalteholz's. On the other hand the pathological plates though equally well drawn are disappointingly few, and there are no plates depicting the parts displayed at various stages of operations. Altogether the book does not seem to achieve its object. G. G. ALDERSON.